SPECIAL BONUS
TRAVEL SECTION

MAPPING DEVELOPMENT OF THE SOUTHERN ONTARIO GREENBELT

CANADIAN Geographic

WILDLIFE PHOTOGRAPHY COMPETITION WINNERS

NORTHERN SPOTTED OWLS
ON THE BRINK

WOODLAND WONDER
THE AMAZING CAROLINIAN FOREST

+

A NEW LIFE FOR CANADA'S RAILWAY BRIDGES,
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THE LEGACY OF THE CONSTITUTION EXPRESS,
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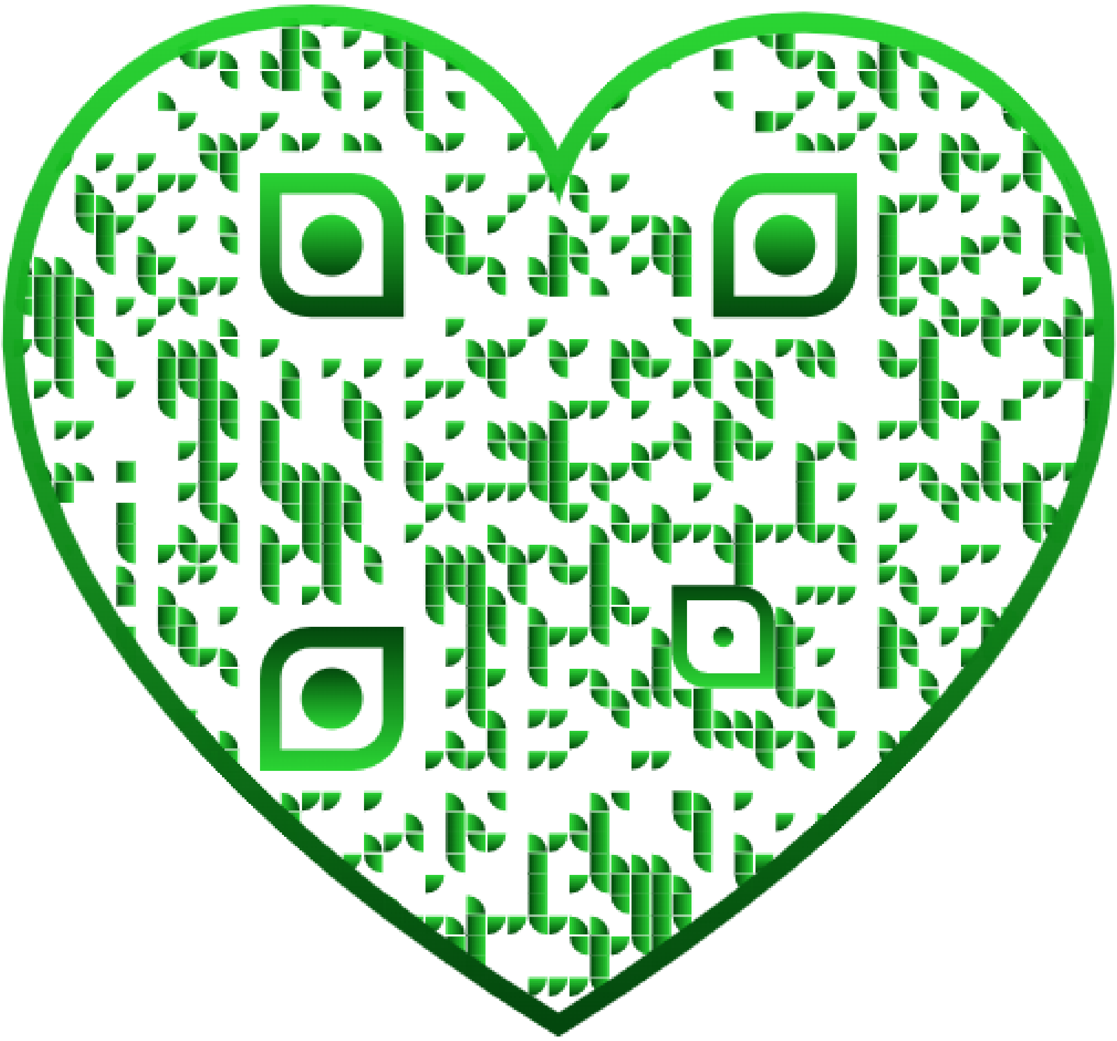

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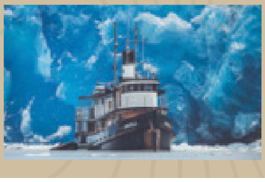

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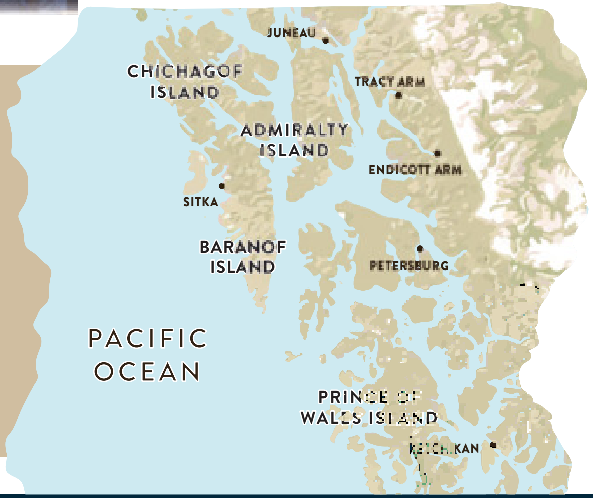
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BARANOF ISLAND
PETERSBURG
PACIFIC OCEAN
PRINCE OF WALES ISLAND
KETCHIKAN

CANADIAN Geographic ADVENTURES

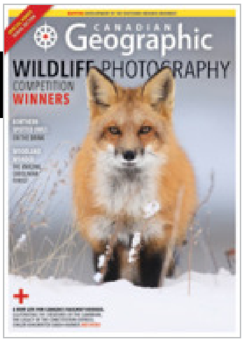
Maple Leaf ADVENTURES

CONTENTS

NOVEMBER/ DECEMBER 2025

ON THE COVER

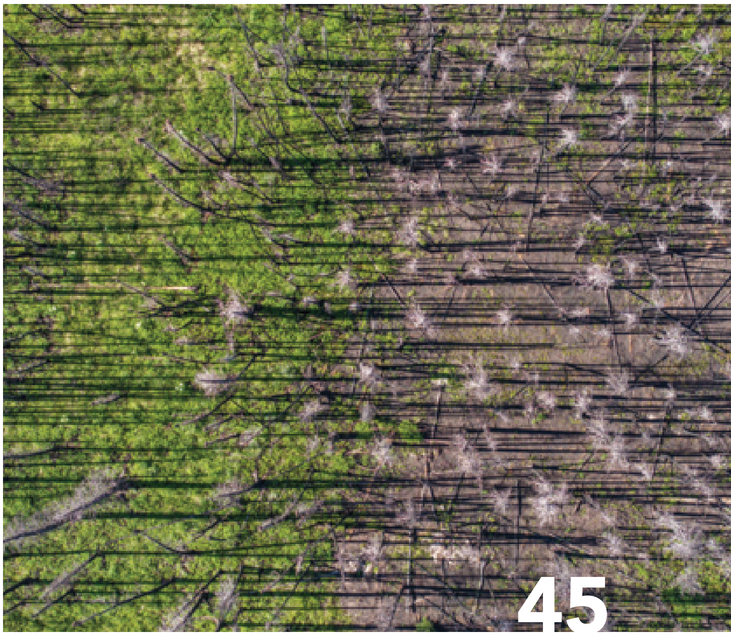
Canadian Wildlife Photographer of the Year Maxime Légaré-Vézina captured this red fox as it met his gaze in Parc national du Bic, near Rimouski, Que.



32 THE POWER OF ONE

Not seen since 2023, the last northern spotted owl in British Columbia is likely gone. But she remains a poignant symbol of our failure to protect old-growth forests — and a motivator to do whatever it takes to bring these owls back from the brink.

By Brad Badelt with photography by Jared Hobbs



45 CANADIAN WILDLIFE PHOTOGRAPHY OF THE YEAR 2025

After 10,000 entries and many hours of deliberation, *Canadian Geographic* honours the winners of our annual wildlife photo competition, with photos showcasing Canada's terrestrial, aquatic and winged life, the flora and fungi that supports it all, and the incredible skill of our photography community.

By Can Geo Staff

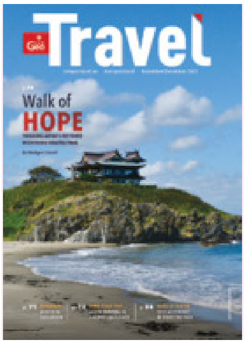
54 THE UNRAVELLING QUILT

The Carolinian forest is a biodiversity hotspot in the most urbanized area of Canada. A dedicated few are fighting to protect what remains.

By Michela Rosano with photography by Colin Boyd Shafer

69 CAN GEO TRAVEL

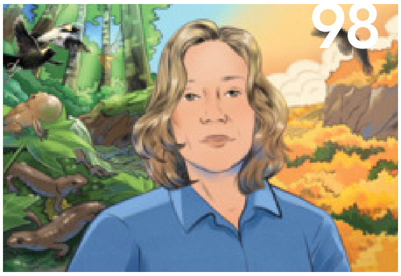
20-plus pages of epic trips, including hiking Japan's Michinoku Coastal Trail following its restoration after the 2011 earthquake and tsunami, a Cree-led adventure in Nibiischii, Eeyou Istchee James Bay, Que., a Nova Scotian crustacean vacation, a packed winter itinerary in Saskatoon and a dino roadtrip through Alberta.



COVER: MAXIME LÉGARÉ-VÉZINA. FROM TOP: JARED HOBBS; BRANDON BRODERICK; TRAVEL COVER: MADIGAN COTTERILL/CAN GEO

DEPARTMENTS

24
First Nations Participation NOW



12 BIG PICTURE
Celebrating Canada's grandeur

14 EXPOSURE
Showcasing our photo community

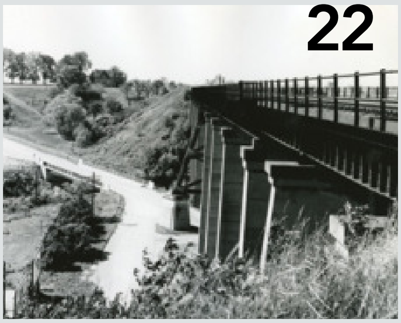
15 IN A SNAP
Sharing *Can Geo* via Instagram

26 ON THE MAP
Charting development and conservation in southern Ontario's Greenbelt

92 YOUR SOCIETY
News from the Royal Canadian Geographical Society

96 COMING UP
Announcing our annual photo competition, illuminating Yukon ghosts and reconnecting pronghorns with their grassland habitat

98 OUR COUNTRY
Singer-songwriter Sarah Harmer on safeguarding the wildlife and waters of Mount Nemo, Ont.



DISCOVERY

17 INTERVIEW
Writer and filmmaker Maia Wikler on environmental justice

20 WILDLIFE
Orcas nibble tongues and the cause of sea star wasting disease

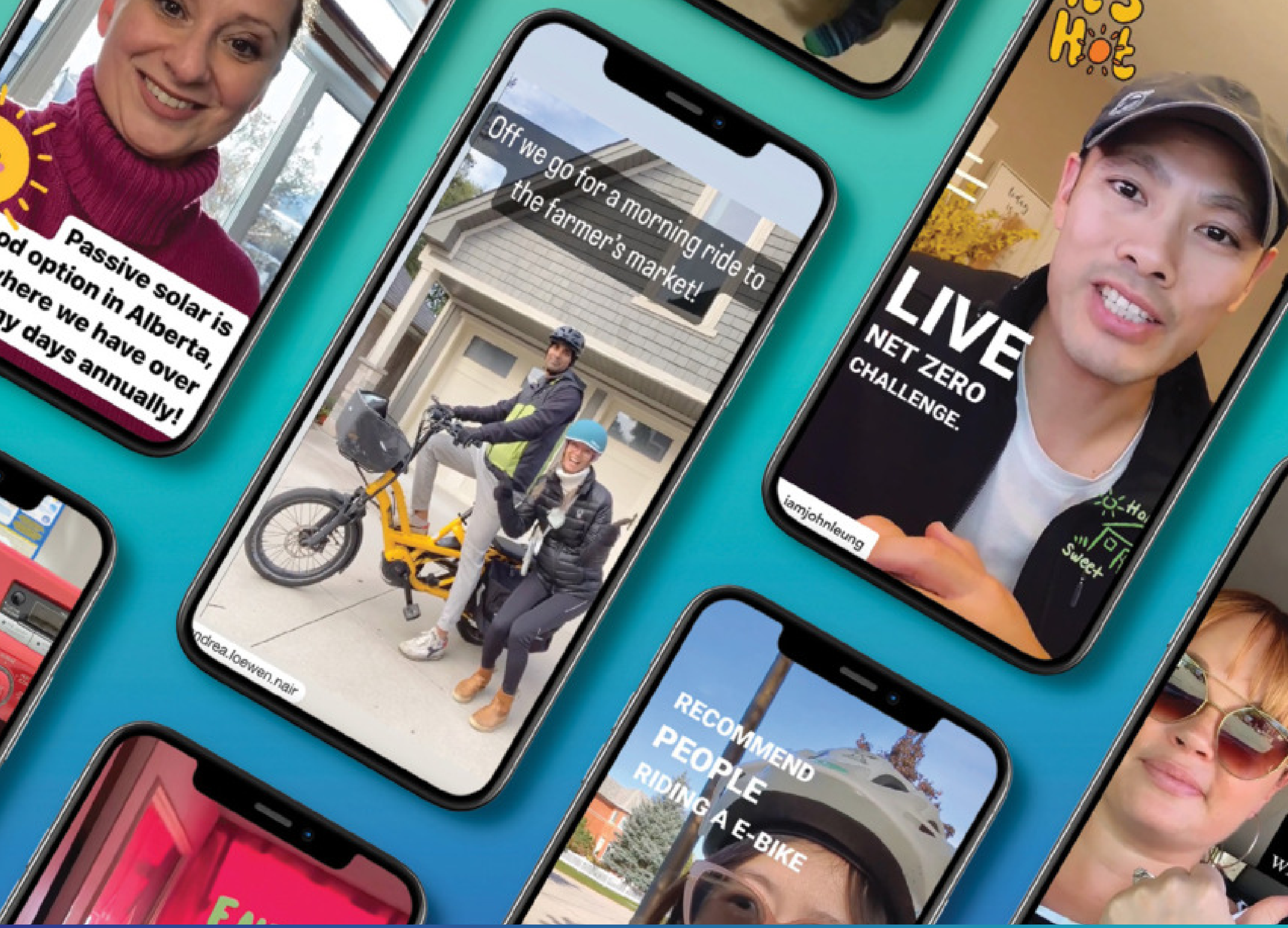
22 PLACE
A new life for railway bridges across Canada

24 HISTORY
Remembering the legacy of the Indian Constitution Express

28 INFOGRAPHIC
What B.C.'s Burgess Shale reveals about bizarre Cambrian creatures

30 LANGUAGE
How the Blackfoot language teaches gentleness

CLOCKWISE FROM TOP: MAXIME LÉGARÉ-VÉZINA; COURTESY OF ELGIN COUNTY ARCHIVES; NATASHA DONOVAN; UNION OF B.C. INDIAN CHIEFS, JULIUS CSOTONYI; TREVOR SOLWAY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DIGITAL CONTENTS

DISCOVER

EDMUND FITZGERALD

THE LEGEND LIVES ON

Fifty years ago this November, the Great Lakes freighter *SS Edmund Fitzgerald* went down in a fierce storm on Lake Superior, with all hands lost. A new book, *The Gales of November,* reveals the untold history of the famous ship. Read an excerpt at **cangeo.ca/galesofnovember**

COMMENT

ON "BORN TO BE WILD"
(SEPTEMBER/OCTOBER)

BORN TO BE
WILD

Your article about the plight of black bears highlights the ongoing conflict between settlements and nature. Here in Nanaimo, B.C., the city implemented a new garbage and recycling system. Now, many people leave their bins outside, which attracts bears and other wildlife. While the city claims to have rules outlawing this behaviour, they are meaningless because there is no appetite for enforcement. All levels of government need to address human and wildlife interactions and design systems with rules that are enforced.

Steen I. Petersen
Nanaimo, B.C.

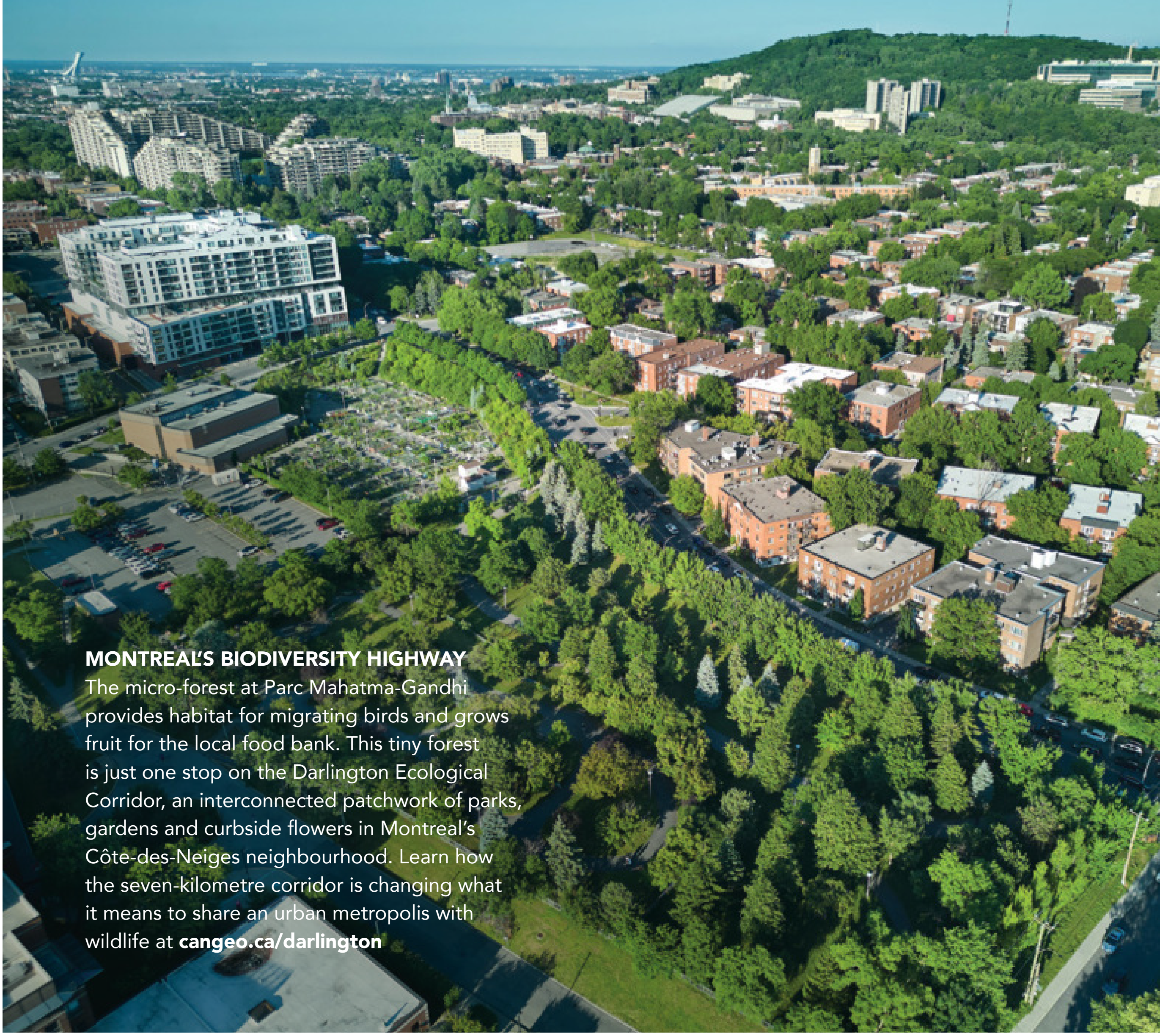
ON "AREA 514"
(SEPTEMBER/OCTOBER)

Where is the UFO? When I observed the stars at the University of Western Ontario's Hume Cronyn Observatory back in the 1970s, I was constantly cursing Western's football team for their night practices. The stadium lights frequently drowned out the stars I was trying to observe. It seems likely that university and CFL football teams in Montreal did similar night practices in the 1990s. The scene is bit eerie, perhaps, but I have seen less easily explained sights in the night sky myself, none of which were "UFOs."

David Turner,
Halifax

CORRECTION (JULY/AUGUST 2025)

On page 55 of our special Canadian sovereignty section, we neglected to add an illustration credit for our star illustrator Jacqui Oakley. We regret the oversight.



MONTREAL'S BIODIVERSITY HIGHWAY
The micro-forest at Parc Mahatma-Gandhi provides habitat for migrating birds and grows fruit for the local food bank. This tiny forest is just one stop on the Darlington Ecological Corridor, an interconnected patchwork of parks, gardens and curbside flowers in Montreal's Côte-des-Neiges neighbourhood. Learn how the seven-kilometre corridor is changing what it means to share an urban metropolis with wildlife at **cangeo.ca/darlington**

EXPLORE

EXPLORER EXTRAORDINAIRE
From the North Pole to Antarctica and everywhere in between, renowned explorer Richard Wiese's expeditions have spanned all seven continents. As the Emmy-winning host of *Born to Explore* on ABC and PBS, he's shared his experiences with audiences worldwide. Last year, Wiese became the youngest president of the Explorers Club, the world's foremost exploration society. Listen to his conversation with host David McGuffin. **cangeo.ca/richardwiese**

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CLOCKWISE FROM TOP LEFT: ROGER LELIEVRE; CHRISTIAN FLEURY/CAN GEO; COURTESY RICHARD WIESE

An eastern skipper rests on a harebell in Manitowaning, Ont. This photo was a finalist in *Canadian Geographic*'s 2025 Canadian Wildlife Photography of the Year competition. See the winners on page 45.

MICHELLE AINSLIE

MADE BY HUMANS

IF YOU'VE SPENT any amount of time interacting with a computer or smart device this year, you've likely noticed that artificial intelligence is suddenly everywhere: offering to polish our emails for us, processing customer service requests, circumventing our Google searches with summaries of questionable accuracy, and cluttering up our social media feeds with attention-grabbing slop. It even recently showed up in the pages of *Vogue*, which published an ad for Guess featuring an AI-generated model.

Normally an avid early adopter of new tech, I've balked hard at AI, not just because of its hidden environmental impact, which we covered in our infographic last issue, but because it is an even greater existential threat to my chosen vocation than declining circulation and vanishing ad revenue.

The magazine you hold in your hands is the product of thousands of hours of work by *people*: the writers who shaped information gleaned from their sources and lived experiences into a narrative; the wildlife photographers who hiked, paddled and even dove to the remote worlds of their chosen subjects and patiently waited for the perfect shot; the editors who ruminated about structure and word choice and then proofed the layouts no fewer than four times; the designers who made the content look its best. We creators will always create, will always prefer the imperfect expression of an original idea over the flat, corporate writing style of ChatGPT or its waxy, hypersaturated images. But in a distracted world increasingly obsessed with optimization and convenience, will readers still want to read?

To you, the reader, I extend my thanks, and a promise: as we enter our 96th publishing year, *Canadian Geographic* will remain a magazine made by curious humans, for curious humans. I hope you'll stick around.

—Alexandra Pope

To comment, please email editor@canadiangeographic.ca or visit cangeo.ca.

For inside details on the magazine, follow editor Alexandra Pope on Bluesky (@xelaepop.bsky.social) and Instagram (@xela.explores).

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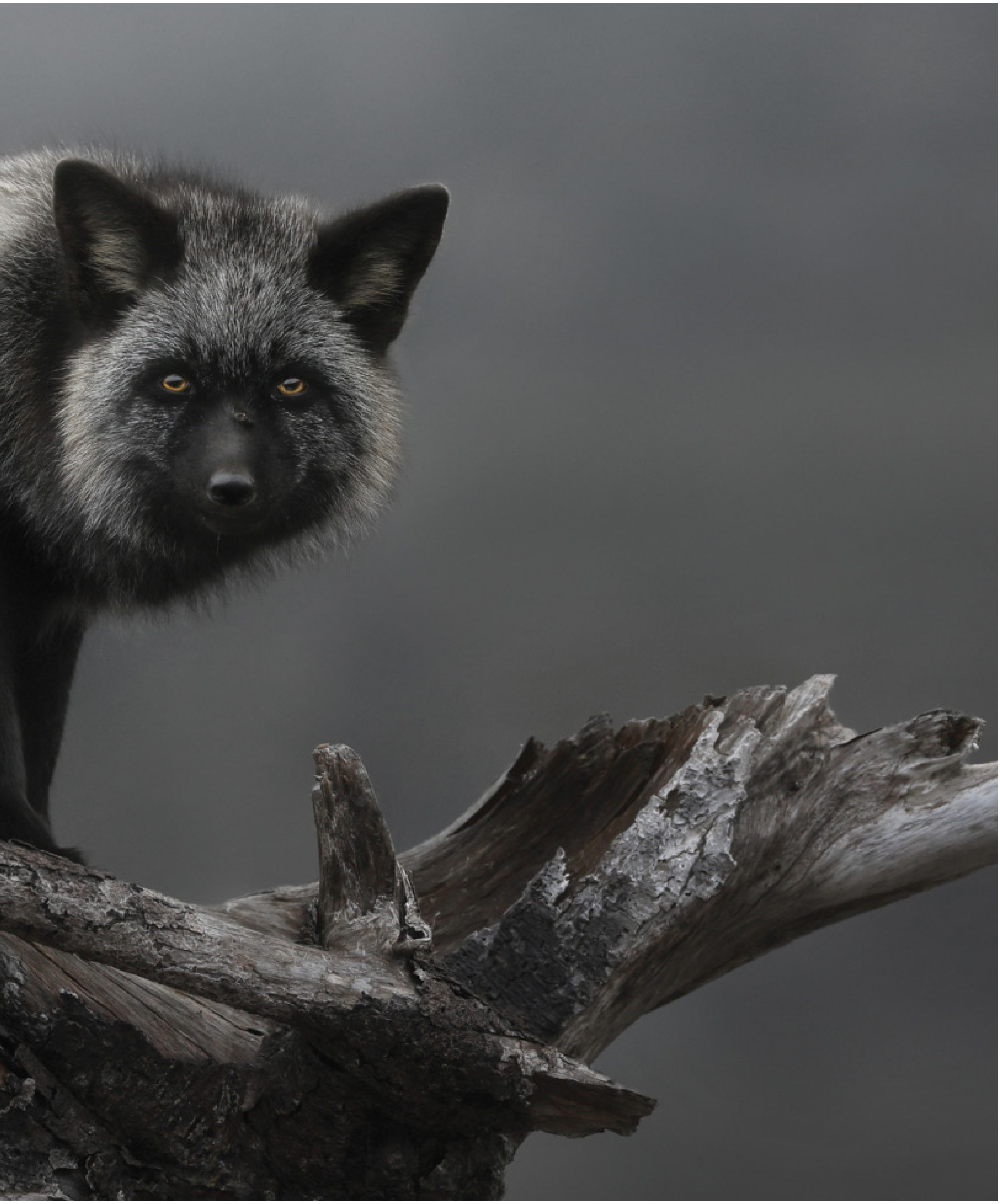
Photo by **MAXIME LÉGARÉ-VÉZINA**
The photographer encountered this cross fox — a partially melanistic colour variant of the red fox — on Anticosti Island in the Gulf of St. Lawrence. Turn to page 46 to learn more about Maxime Légaré-Vézina, *Canadian Geographic*'s Canadian Wildlife Photographer of the Year for 2025.

Follow Maxime Légaré-Vézina at
@maxime_lv_photography



CANADIAN Wildlife PHOTOGRAPHY OF THE YEAR 2025

HONOURABLE MENTION

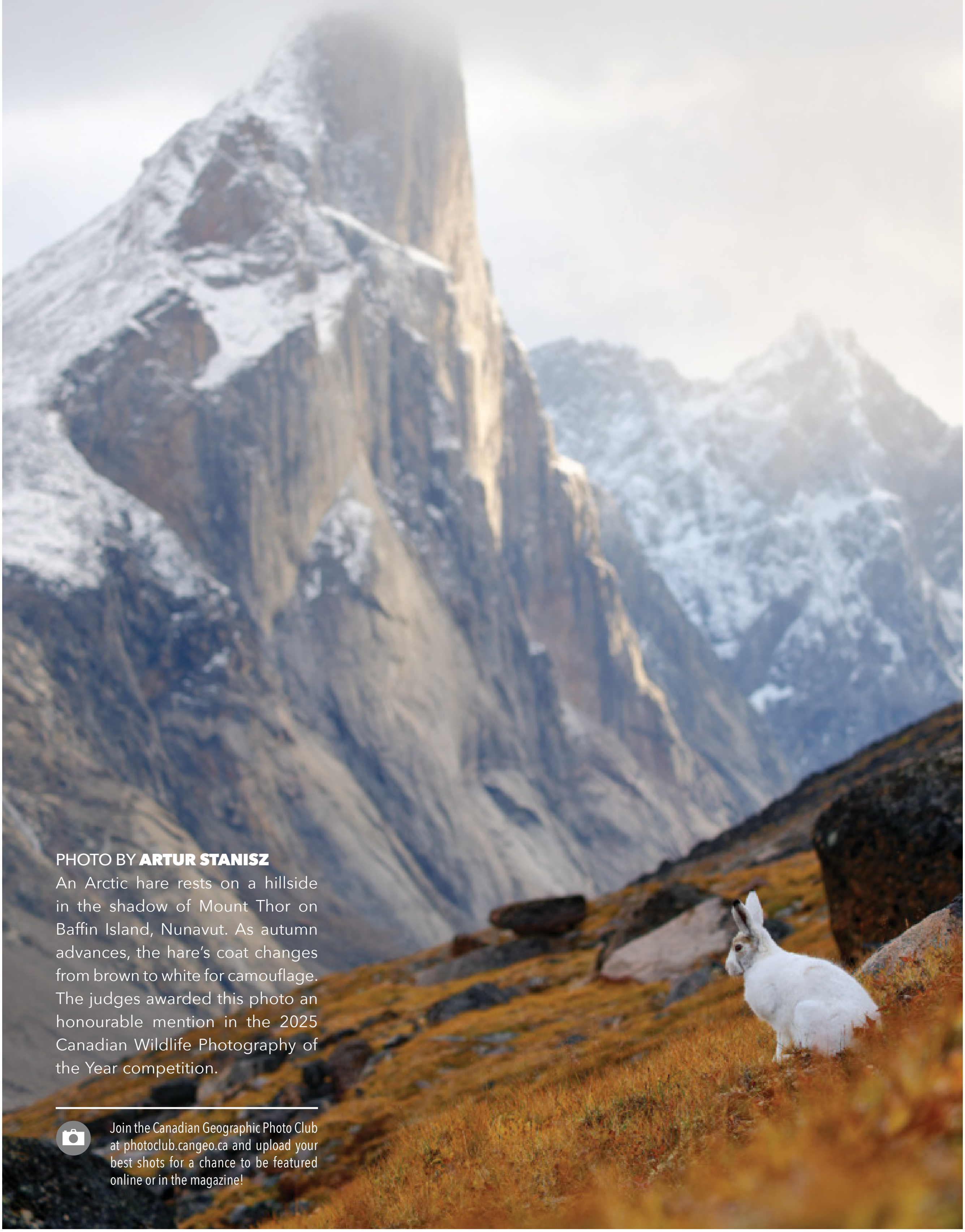
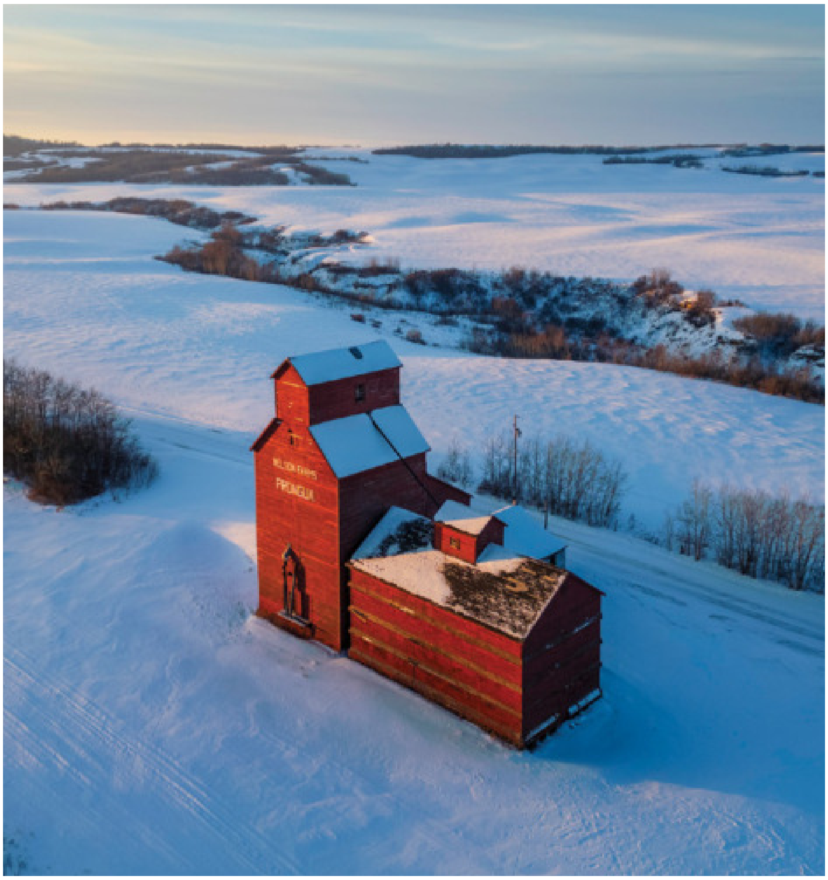


PHOTO BY **ARTUR STANISZ**
An Arctic hare rests on a hillside in the shadow of Mount Thor on Baffin Island, Nunavut. As autumn advances, the hare's coat changes from brown to white for camouflage. The judges awarded this photo an honourable mention in the 2025 Canadian Wildlife Photography of the Year competition.

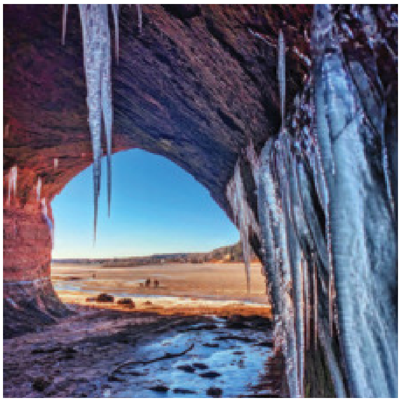
Join the Canadian Geographic Photo Club at photoclub.cangeo.ca and upload your best shots for a chance to be featured online or in the magazine!

IN A SNAP

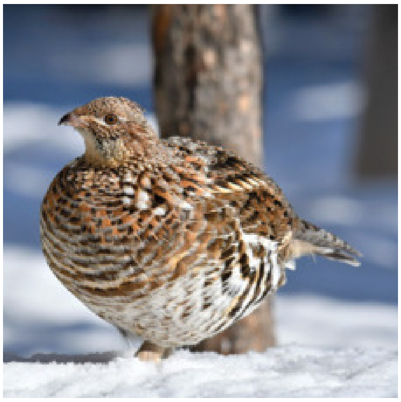
Sharing Can Geo via Instagram



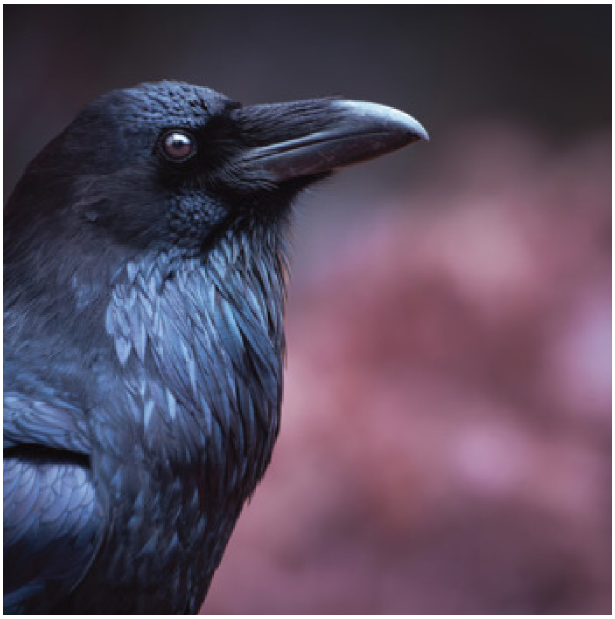
@gilbertkaterynych **Gilbert Katerynych**
This grain elevator in Prongua, Sask., is a municipal heritage property.



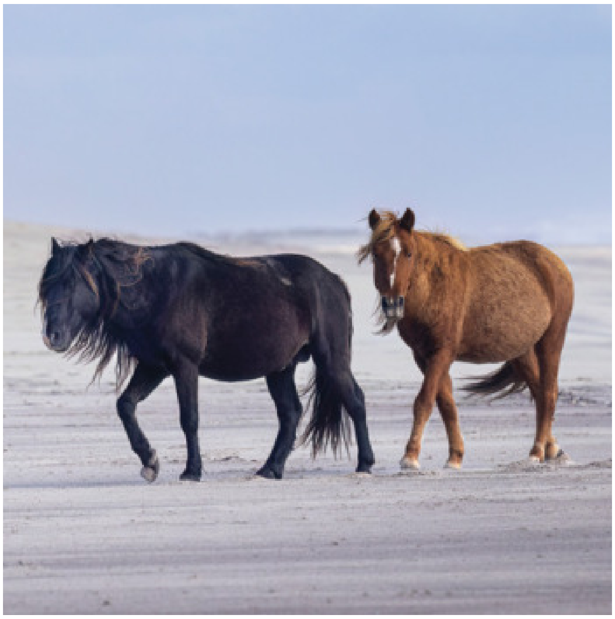
@elen_eyes **Elena Rivera-Mancia**
St. Martins Sea Caves, Bay of Fundy, N.B.



@northern_bird_nerd **Melanie Palik**
Ruffed grouse, near Timmins, Ont.



@blonde_biologist **Lauren Todd**
Common raven in Algonquin Provincial Park, Ont.



@lynnfergussonphoto **Lynn Fergusson**
Wild horses on Sable Island, N.S.

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OLIVIA VANDERWAL

Maia Wikler is using film to raise awareness of environmental issues.

Maia Wikler

The young activist and filmmaker on memory, resistance and the hidden scourge of "fast furniture"

INTERVIEW BY **ANGELICA HAGGERT**

Writer and filmmaker Maia Wikler may be just one voice, but she is committed to wielding her storytelling skills to ensure she is heard loud and clear. Wikler has made a name for herself as an organizer with a laser-sharp focus on achieving justice for the environment. Indeed, she refers to the battle to hold corporations to account as "the struggle of our lives." Her PhD research is dedicated to better understanding ways to effect societal change, including memory as a tool of resistance.

On shifting baseline syndrome

My PhD looks at shifting baseline syndrome, which is when people start normalizing their degraded environments. That normalization inhibits their ability to take action and respond appropriately to how the environment is being negatively impacted or is no longer functioning in the way it should. I'm looking specifically at deforestation in B.C. Old-growth forests are living archives — they show us how things have been and could be. My work is "storying" these places through the memories of people who have long defended them or have different types of relationships to them. I'm asking how we can counteract shifting baseline syndrome to address what researchers call an extinction of experience.

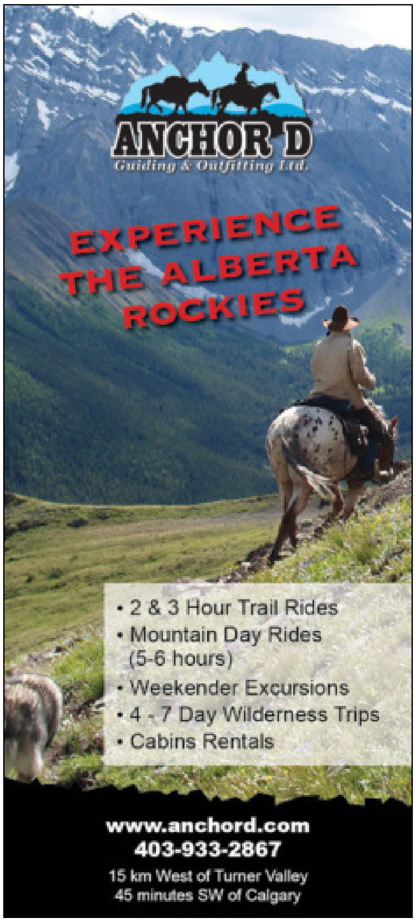
SAVE ROMANIAN PRIMARY FORESTS!
Robin Wood
euro natur

Activists protest illegal logging in protected Romanian forests – the focus of Wikler's forthcoming documentary.

Because there is so little old-growth forest left, a lot of people have no living memories or experiences in these places, which makes it much easier for corporations to tell the public that a tree plantation is a forest when it absolutely is *not* a forest.

On fast furniture

A friend told me that IKEA was destroying forests in Romania that her family had gone to throughout their lives. IKEA is one of the largest consumers of wood in the world. A lot of people are under false impressions due to the company's effective greenwashing that you can consume furniture cheaply without consequences. There's a consequence to convenience. To maintain its price points, IKEA has to secure timber as cheaply as possible, and unfortunately, with a mass-production model, it is impossible to guarantee that this timber is being responsibly sourced. They depend on certifications like the FSC (Forest Stewardship Council) to say that they are responsibly sourcing their timber, but I have been to FSC-certified logging sites that looked like moonscapes. We are talking about the extinction of critical ecosystems when ancient forests are being logged. Those trees are being transformed into flat-pack furniture, and because the consumer is buying that furniture at such a cheap price, there's no incentive to reuse it, recycle it or repurpose it. Fast furniture isn't part of the popular discourse right now, and I hope that it will be through my [documentary film *Wild East*, coming out next year].



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On herbicides and health

Right now, I'm taking care of my dad, who has cancer due to his exposure to Roundup, a glyphosate-based herbicide. It was originally created by Monsanto, which was later sold to Bayer, a pharmaceutical and biomedical multinational that also produces the medication that treats the cancer caused by Roundup. [*Studies have shown that exposure to glyphosate may increase a person's risk of developing certain types of cancers. Bayer maintains that glyphosate is not carcinogenic and that its products are safe to use. — Ed.*] Roundup has devastating consequences in every way, from human health to biodiversity — it has been attributed to bee die-offs, butterfly die-offs and negative impacts on soil health. There has been little research on its cumulative impacts because it's not regulated by the FDA (U.S. Food and Drug Administration). I think this is the new Silent Spring, and I want to do a project on it. Roundup was sold on the shelves of Home Depot with the slogan "Kills at the roots." That's what I want my project to be called — *Kills at the Roots*.

On bringing it all together

My storyline is corporate abuse. It's a more empowering way for us to perceive these struggles because it's an us versus them. Ultimately, it's just a few handfuls of corporations that are causing widespread impacts on both the environment and our own health. The work I'm doing with my documentary on fast furniture and IKEA, through my PhD work and with the Roundup project I'm undertaking to fight this fight for my dad — they all come down to corporations taking our lifeline: the environment. Whatever happens to the environment happens to us. I cope with this by fighting and by taking a stand. I gain a sense of agency by being a truth teller, by being a storyteller, by doing investigative on-the-ground research and reporting that exposes what's really happening. Hopefully, the storytelling serves as a wake-up call for all of us to step into deeper awareness and feel empowered rather than paralyzed. ❁

ROBIN WOOD

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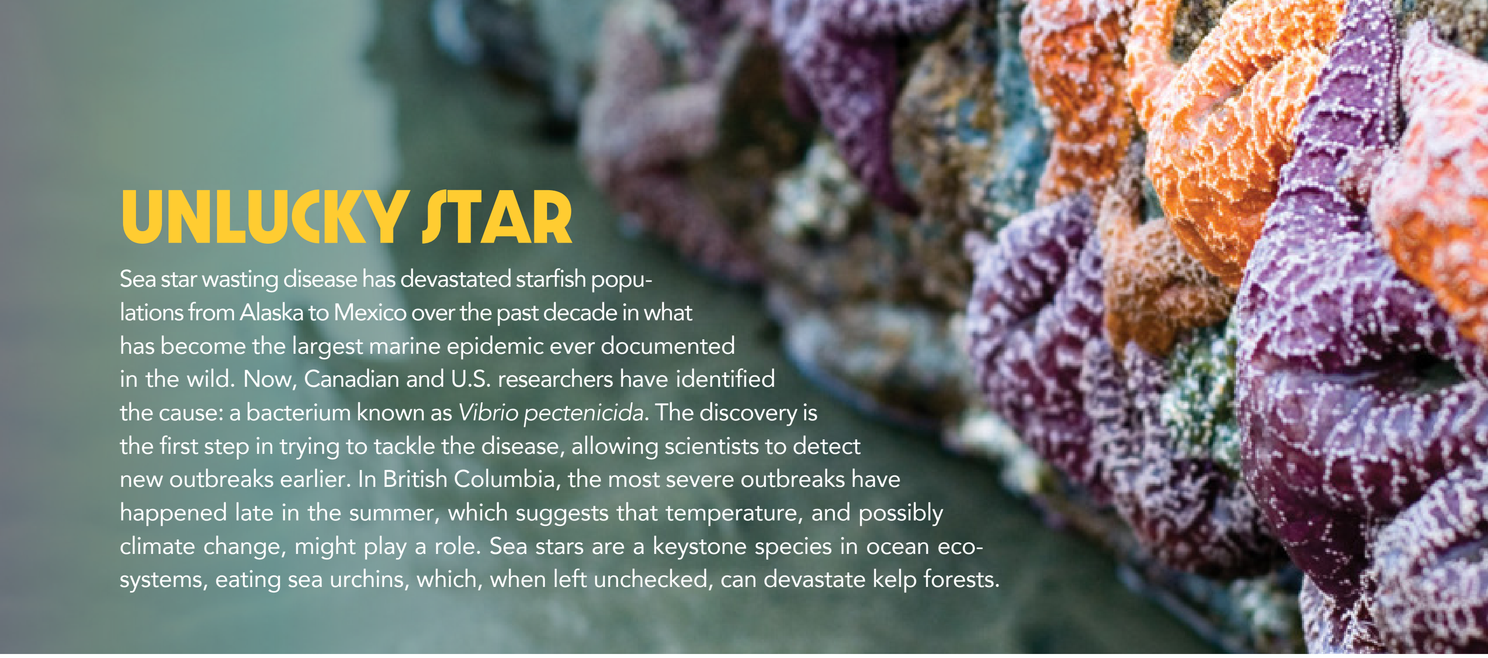
BEAR NECESSITIES

Churchill, Man., is the polar bear capital of the world, and nearby Wapusk National Park, along the western shore of Hudson Bay, is a popular area for female polar bears to give birth. The bears here dig into frozen peat banks to build their dens. Because they're dug into permafrost, the earth dens remain as persistent landscape features and may be reused over several decades. Stephen Petersen, director of conservation and research with Assiniboine Park Conservancy, is worried that wildfires this past summer could lead to collapsed dens and burnt-out areas that the female bears avoid. He's using his research to create a map that can help inform wildfire fighting efforts in the future and protect the bears' habitat.



UNLUCKY STAR

Sea star wasting disease has devastated starfish populations from Alaska to Mexico over the past decade in what has become the largest marine epidemic ever documented in the wild. Now, Canadian and U.S. researchers have identified the cause: a bacterium known as *Vibrio pectenicida*. The discovery is the first step in trying to tackle the disease, allowing scientists to detect new outbreaks earlier. In British Columbia, the most severe outbreaks have happened late in the summer, which suggests that temperature, and possibly climate change, might play a role. Sea stars are a keystone species in ocean ecosystems, eating sea urchins, which, when left unchecked, can devastate kelp forests.

Food for thought

They say you are what you eat, and a recent study in *Molecular Ecology* proves it. Endangered mountain caribou in the high mountains of the B.C. Interior feed on different lichens than caribou east of the mountains, in Alberta. The result is that the B.C. caribou have different gut microbes to digest their lichens of choice. The finding has big implications for efforts to save dwindling herds of endangered caribou, which increasingly involves penning them to keep them safe. Caribou in pens consume different lichens than their free-ranging counterparts, partly because it is difficult for volunteer lichen collectors to identify and collect the right lichens, and partly because penned caribou are also fed manufactured pellets. For B.C.'s mountain caribou to thrive, preservation efforts must focus on the old-growth forests that grow the hair lichens they rely on to get through the winter.

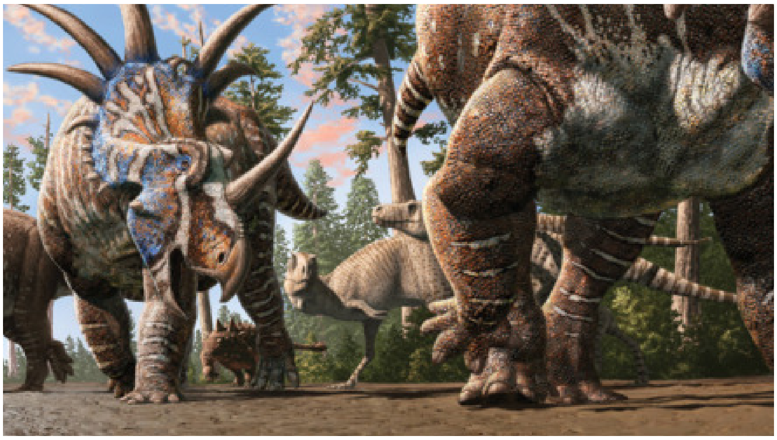
Read *Canadian Geographic*'s latest wildlife stories at cangeo.ca/wildlife.

"Tongue nibbling"

Apparently, it's a sign of affection among wild orcas. The kissing behaviour was filmed by a group of snorkellers during a chance encounter in the Norwegian fiords. Researchers think this type of affectionate tongue nibbling and gentle face-to-face contact — previously reported only in captive orcas — may be a form of social bonding. Beluga whales in captivity have exhibited similar mouth-to-mouth interactions. Researchers noted that the first-of-its-kind footage illustrates the value of citizen-science observations to zoological research.

HERD IMMUNITY

The discovery of a series of footprints in Alberta's Dinosaur Provincial Park brings new meaning to the term "herd immunity." An excavation made during an international field course in 2024 uncovered evidence of a 76-million-year-old dino herd that included 13 horned dinosaurs and one armoured dinosaur. The tracks of two large tyrannosaurs walking perpendicular to the group suggests the possibility that less blood-thirsty dinosaurs may have traveled in multispecies herds as a defense strategy against apex predators like *T. Rex*.



CLOCKWISE FROM OPPOSITE: ISTOCK/EEI TONY; ISTOCK/SEAN WOOD; ALAMY/LEE RENTZ; ANDREW TRITES, MARINE MAMMAL UNIT, UBC; COURTESY OF UNIVERSITY OF READING, ILLUSTRATED BY JULIUS CSOTONYI

Walking the rails

Canada’s railway bridges, like the Bill Thorpe Walking Bridge in Fredericton, N.B., continue to connect communities across rivers and valleys

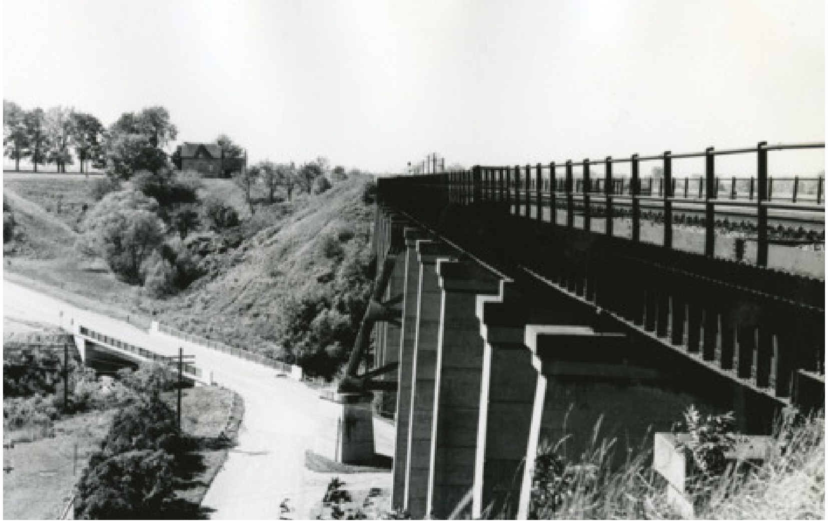
BY **KAARINA STIFF**

NEARLY 20 YEARS after flooding from New Brunswick’s Mactaquac Dam ended freight rail service between Fredericton and Woodstock in 1967, Patty Trail had some neighbours over for a chit-chat. “We were talking about my mother-in-law and another elderly lady who used to walk on the abandoned rail lines,” says Trail. “Our kids were at an age when they were biking on the streets, and I said, ‘It’s too bad those [rail lines] couldn’t be changed to walking trails.’”

Trail, then an avid cyclist, teamed up with like-minded residents who hoped to convert Fredericton’s old railway lines into a connected trail system. “I can just remember us going before the city,” Trail says. “They would be saying, ‘That Mrs. Trail, I don’t know what she thinks she is.’”

When the railway tracks going south from Fredericton were abandoned in 1995, a more expansive vision for a connected trail network emerged, with the old railway bridge across the Saint John River as the north-south connector.

Trail’s audaciousness paid off in 1997 when the refurbished bridge opened to pedestrians and cyclists. The Bill Thorpe Walking Bridge, as it’s now known, stretches nearly 600 metres across the river between downtown Fredericton and the community of Devon. From the middle of the bridge looking toward the city, the spire of the gothic-revival Christ Church Cathedral



OPPOSITE PAGE: Bill Thorpe Walking Bridge, Fredericton, N.B. **THIS PAGE:** The Michigan Central Railway Bridge in St. Thomas, Ont. (ABOVE) crosses the Kettle Creek Valley; looking east (BELOW) across the Michigan Central Railroad Bridge.

dominates the skyline, just as it did when the original rail bridge was constructed in 1888. In a real-world case of "build it and they will come," the bridge now sees 600,000 crossings each year.

Across Canada, similarly determined community advocates have breathed new life into old railway bridges years after the last trains rolled along the tracks. Instead of providing safe passage for shipments destined for faraway buyers, the abandoned railbeds now connect neighbours and history. Just as Trail did in New Brunswick, Canadians from across the country have spoken up for historic pieces of Canada's rail infrastructure that outlasted their original purpose.

In St. Thomas, Ont., "the railway city," Matt Janes had little trouble convincing people that the Michigan Central Railroad Bridge over Kettle Creek was worth saving. Residents had already rallied to preserve the town's Canadian Southern Railway station, which was restored as a space for events and offices starting in 2005.

Beginning in the 1870s, the Canadian Southern Railway line — with St. Thomas at the centre — provided a Canadian shortcut between Michigan and New York. The current Kettle Creek bridge was built in 1929 to withstand heavy trains. To avoid disrupting rail traffic during construction, crews suspended a temporary railway line above the active tracks, earning the bridge recognition as an engineering marvel of its era.

It's now a local landmark, towering nearly 30 metres above the steep, lush valley surrounding Kettle Creek. The bridge sat dormant for more than a decade after being taken out of service in 1996 — that is, until rumours surfaced that it would be torn down for scrap steel. "The bridge itself is iconic," says Janes, director of the non-profit On Track St. Thomas. "We thought it would just be a real shame if that bridge was totally abandoned and demolished."

Instead, the community group rallied support to turn the bridge into an elevated greenspace. After a fundraising campaign, they bought the bridge in 2013. Since 2017, the St. Thomas Elevated Park has provided a community gathering place with seating areas, public art and a panoramic view of the farms and forests of the Kettle Creek Valley.

Elsewhere in Canada, rail traffic through downtown Red Deer, Alta., between Calgary and Edmonton was so frequent in the 1980s that the city asked the Canadian Pacific Railway to relocate outside city limits. As the CPR began pulling up tracks, residents in the Riverside Meadows neighbourhood wanted the bridge across the Red Deer River to stay — people had gotten used to crossing the bridge on foot, despite the safety risk. "This is the only bridge on the Red Deer River that has never fallen prey to the ice in the spring and was part of what made Red Deer possible," wrote resident Shirley Hocken in a letter to city council in 1991. "This bridge has always been an integral part of people's lives that have lived on the north side of the river." The CPR Pedestrian Bridge is now getting a $22-million refurbishment. Slated to be unveiled in fall 2026, it will include a plaza and two sites for public art.

Back in Fredericton, Patty Trail now lives beside the trail system she helped create. The bridge has become the hub she always imagined. "I'm older now, but everybody gathered on the bridge at night," Trail says. "Everybody loves it."

OPPOSITE: CEES BROUWER/SHUTTERSTOCK; THIS PAGE: COURTESY OF ELGIN COUNTY ARCHIVES

All aboard the Constitution Express

Forty-five years ago, a group of Indigenous activists chartered two trains from Vancouver to Ottawa

BY **KALLAN LYONS**

IN SEPTEMBER 1980, Grand Chief George Manuel, president of the Union of British Columbia Indian Chiefs, walked into his office holding an unmarked envelope containing a secret document. Louise Mandell, an Aboriginal and treaty rights lawyer who was at this emergency meeting, remembers Manuel removing the document from its jacket before handing it to a member of his legal team to read aloud.

The confidential memo revealed Prime Minister Pierre Trudeau's proposal to patriate the Canadian Constitution, meaning Canada would be able to amend its constitution without permission from the Crown — and planned to do so without Indigenous consultation, undermining Canada's responsibility to recognize and protect Indigenous and treaty rights. "There is likely to be a major effort by Canada's Native Peoples to win national and international support (especially at Westminster) for their stand against patriation," the leaked cabinet briefing read. "If the Native Peoples press forward with their plans and if they succeed in gaining support and sympathy abroad, Canada's image will suffer considerably."

Manuel's team was speechless. "George told us 'This is the biggest threat to Indigenous people since the White Paper,'" Mandell says, referring to the 1969 policy that proposed the abolishment of the Indian Act. The Union of British Columbia Indian Chiefs sprung into action following its fall assembly in Vancouver in mid-October 1980, where more than 100 chiefs gathered to protest the silencing of Indigenous voices. "They decided to take a train to Ottawa to confront the government," says Mildred Poplar, 88, from Old Crow, Yukon, who worked with the organization for more than 20 years. The movement became known as the Indian Constitution Express.

Two trains were chartered for Ottawa, and people hustled to raise funds for the journey. They drummed on the streets and harvested mushrooms. They sold their furniture, livestock and handcrafts. They held bake sales and passed around hats. "It was just ordinary people [who] said, I've got what I've got, I'll give what I can, and I'm prepared to stand up for this," says Mandell. "That's what was so powerful about the Constitution Express. It really was a grassroots movement in the purest sense of the word." Momentum was buoyed by the Indian Child Caravan — a parade of vehicles carrying about a thousand people from all over B.C. that had rolled into Vancouver two days before the assembly to demand Splatsin jurisdictional control over their own child welfare program.

On November 24, 1980, hundreds of people gathered at Vancouver's Pacific Central Station. Passengers piled into railcars destined for the nation's capital to the sounds of drums, songs and prayer. Poplar spent the journey checking in on passengers, who remained calm despite what lay ahead. "They knew what we were up against," she says, "and that we could lose everything if the constitution was brought back the way the federal government planned."

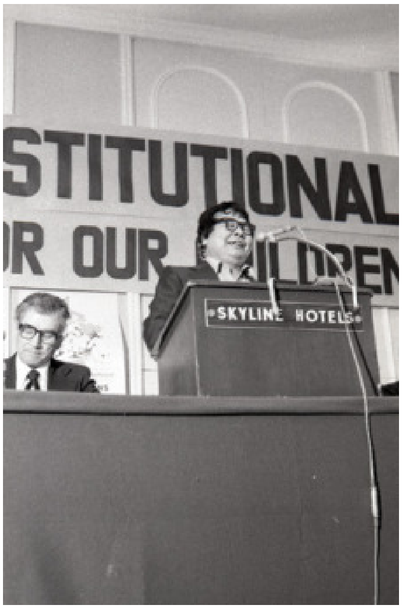
The 4,400-kilometre trek took four days and picked up supporters along the way. Mandell greeted the one thousand adults, children and Elders who disembarked in Ottawa. She later wrote: "I felt this quality of love at the train station that day — a kind of happy light — holding together and splitting apart at the same time, like the act of being born."

Chief Manuel had a heart attack, but it didn't stop him from giving Mandell and others directives from his Ottawa hospital bed. They drew up a petition to the Queen outlining the legal case for Indigenous participation in patriation, as well as a bill containing an agenda for decolonization.

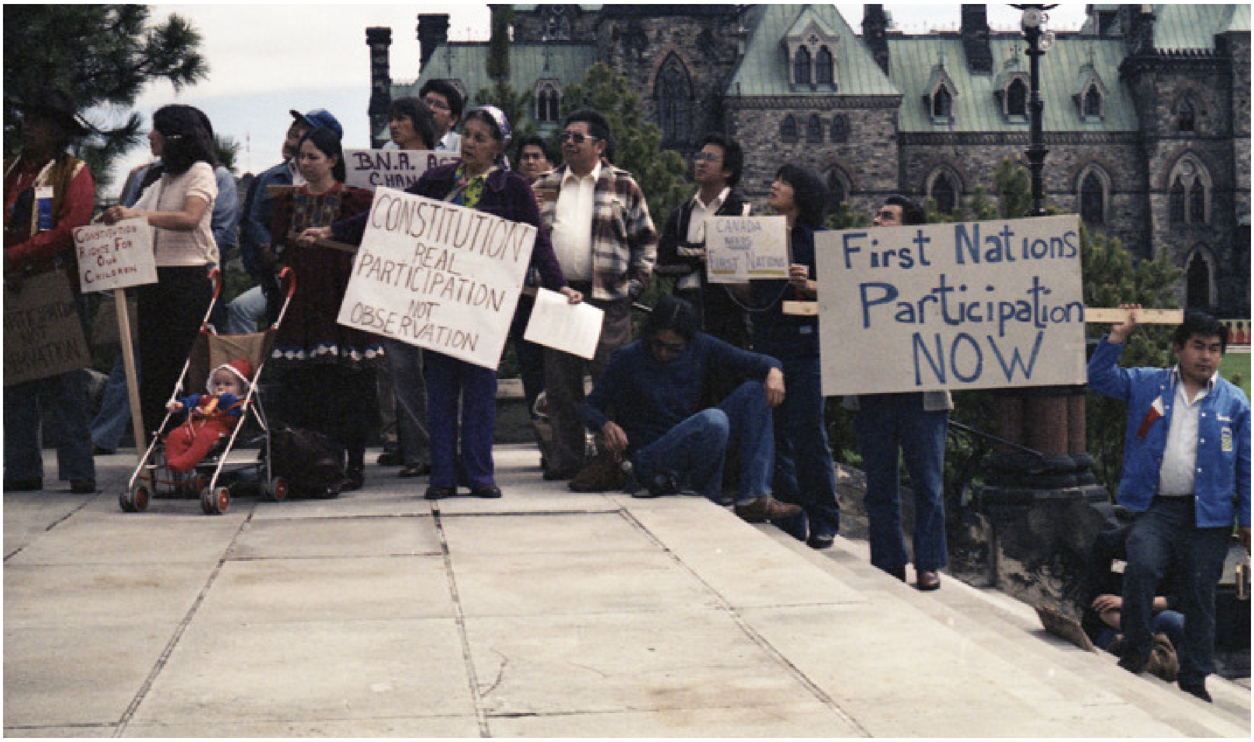
The petition and bill were hand-delivered to the governor general. The Express continued to the United Nations in New York and finally to Europe in November 1981, garnering international attention."People have to know how serious it was for our people," says Poplar. "It was a critical moment."Adds Mandell: "To this day, I keep meeting people who thought about the train as being their kind of political enlightenment, where they woke up to the fact that they could stand up for themselves."

In April 1982, the Constitution Act was enacted, including section 35, which recognizes and affirms existing Aboriginal rights — something that wouldn't have been included without the sustained pressure and support that the Express ultimately achieved. It wasn't the full acknowledgment of Aboriginal title, rights and Treaty rights the Union of British Columbia Indian Chiefs had petitioned for, but it was still progress, Grand Chief Manuel told his supporters.

Manuel "knew that one day, as the Indian people move forward, they're going to be up against the government and Canadian society, and we would need political support outside of Canada," says Poplar. "In that sense, the fight goes on." Four decades later, Manuel's words still resonate: "We must take back our lands. That is the fullest expression of our right."


STITUTIONAL
R OUR ILDREN
SKYLINE HOTELS

Clockwise from TOP LEFT: Grand Chief George Manuel speaks at the 1980 Union of B.C. Chiefs fall assembly; Louise Mandell in 1980; the rally at Parliament once the trains arrived in Ottawa; Grand Chief Manuel (front, centre) leads his supporters marching for the rights of their children; passengers on the Indian Constitution Express as they travelled to the capital.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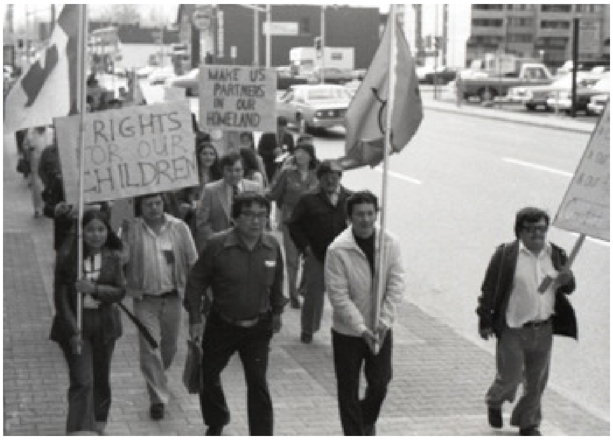

RIGHTS FOR OUR CHILDREN
MAKE US PARTNERS IN OUR HOMELAND

UNION OF B.C. INDIAN CHIEFS

ON THE MAP

Exploring Cartography

Keeping it green

With Canada facing a housing crisis, a look at growth and conservation in its densest urban area

MAP BY **CHRIS BRACKLEY**
WITH TEXT BY **BRIAN BANKS**

In 2005, the Ontario government, in consultation with nearly two dozen municipalities around Toronto, came up with a bold plan: to prohibit urban development on a huge swath of land beyond existing built-up areas. The Greenbelt was born.

Its goal: to promote smarter, denser urban growth and protect farmland, forests and other natural areas by reining in sprawl. In all, more than 800,000 hectares (8,000 square kilometres) were set aside, including 300,000 hectares of prime farmland. The Greenbelt's boundaries took in previously protected areas like Oak Ridges Moraine and the Niagara Escarpment, plus an even larger area newly designated as "protected countryside."

Two decades on, this map sheds light on what has and hasn't been achieved since the Greenbelt's creation. Based on data and satellite imagery through the end of 2024, it shows where development has taken place since 2000 (in black) and highlights the evolution of critical land-use designations (in white, yellow and red) in the six largest municipalities in the region: Halton, Peel, York and Durham and the cities of Hamilton and Toronto.

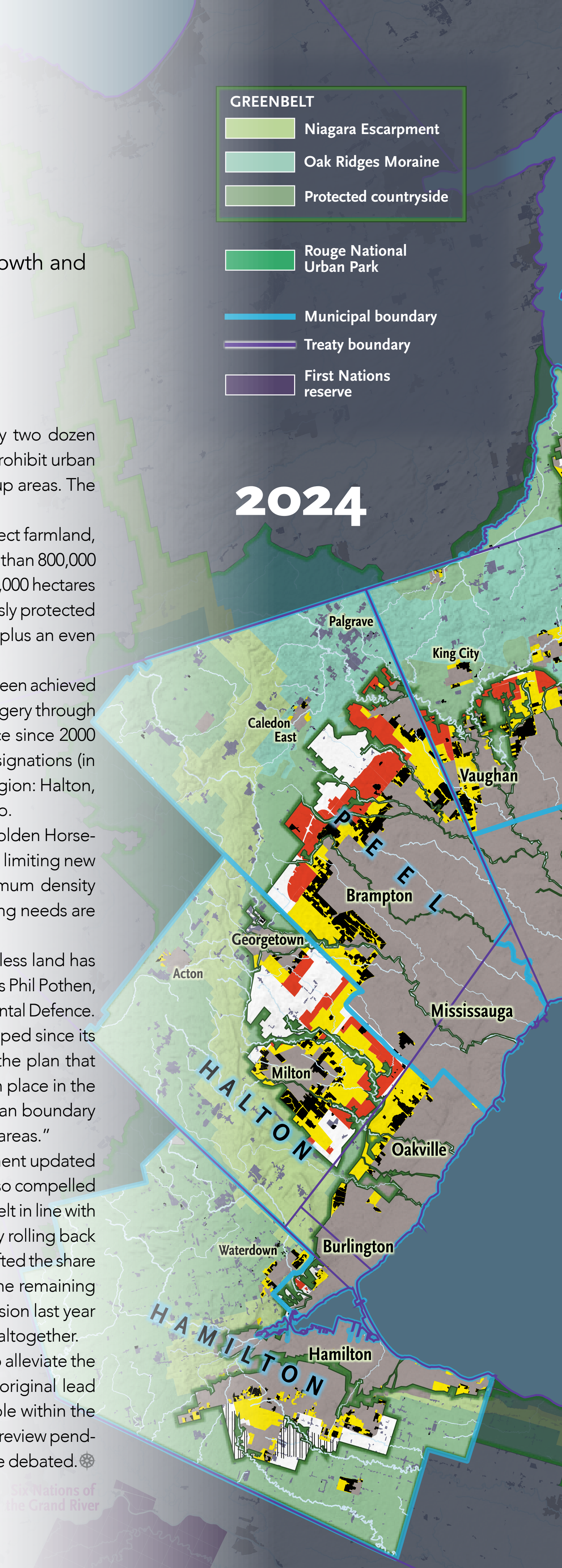
Until last year, the province's growth plan for the Greater Golden Horseshoe guided all development, defining built-area boundaries, limiting new development to designated growth areas and setting minimum density requirements for housing to limit sprawl while ensuring housing needs are met through 2031.

This growth plan worked even better than expected. "Far less land has been consumed than was designated as sprawl up to 2031," says Phil Pothen, land use and land development program manager at Environmental Defence.

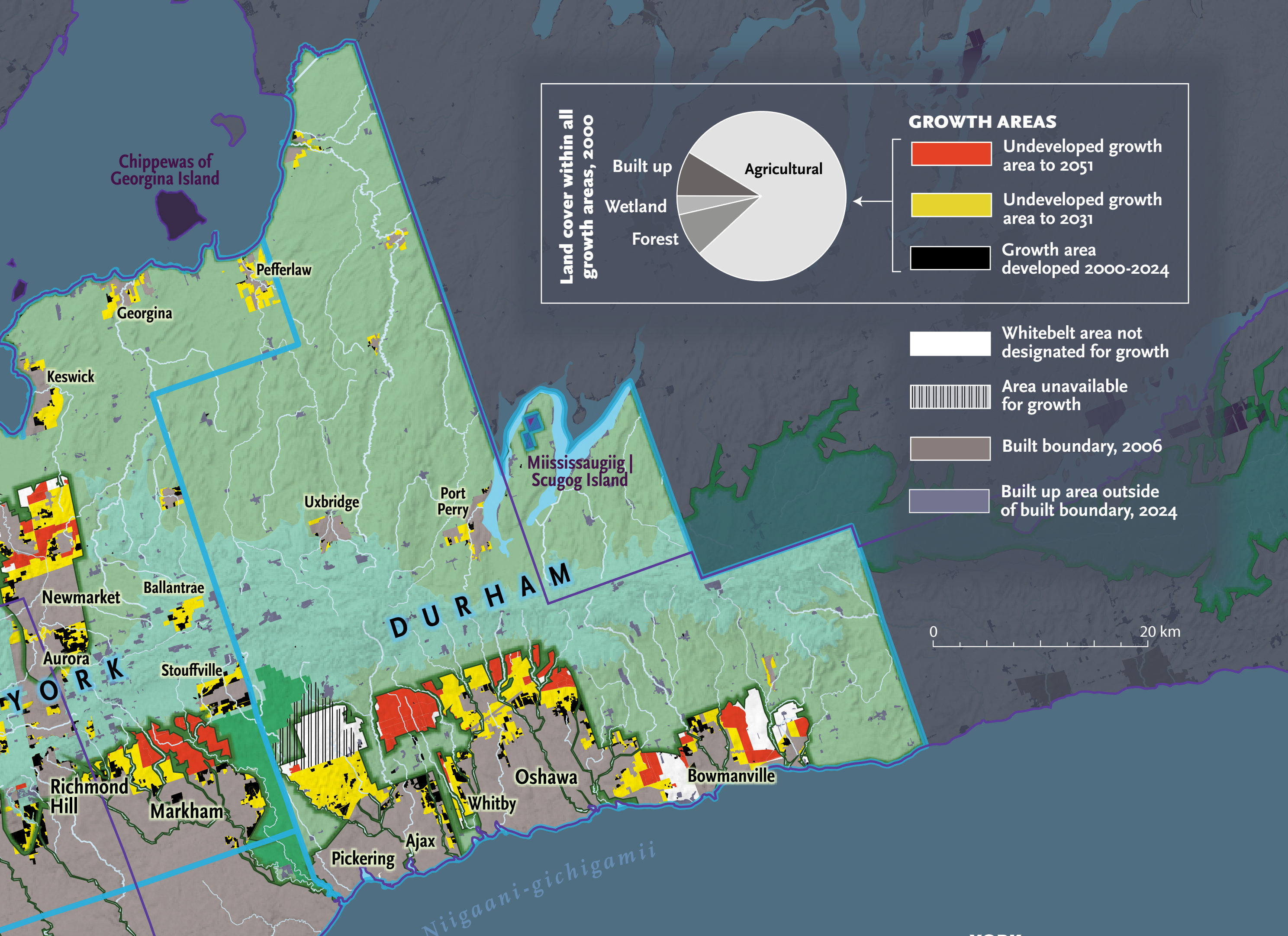
As the map shows, bits of the Greenbelt have been developed since its creation, largely in local growth areas or sites exempt from the plan that were approved before 2005. But most new building has taken place in the Whitebelt, a buffer zone between the Greenbelt and the urban boundary that was to stay undeveloped except in designated "growth areas."

However, after 2020, the Progressive Conservative government updated the Greater Golden Horseshoe's planning horizon to 2051. It also compelled municipalities to expand growth area boundaries in the Whitebelt in line with population and employment projections, while simultaneously rolling back minimum density thresholds on greenfield development. That lifted the share of growth area in the Whitebelt to 86 per cent. Pothen says the remaining 14 per cent is also now at risk following the government's decision last year to repeal the growth plan for the Greater Golden Horseshoe altogether.

The government's rationale was that more land is needed to alleviate the housing crisis. However, both Pothen and Victor Doyle, the original lead planner for the Greenbelt, say there's still ample room available within the 2031 boundaries. With the Greenbelt's next mandated 10-year review pending, it's clear these development boundaries will continue to be debated.



MAP DATA: GROWTH AREAS: GROWTH AREAS TO 2031 AND GROWTH AREAS TO 2051, AS THE CROW FLIES CARTOGRAPHY (2031 DATA BUILT FROM DATA CREATED BY THE NEPTIS FOUNDATION), 2025; GROWTH AREA DEVELOPED 2000-2024: AS THE CROW FLIES CARTOGRAPHY, 2025; BUILT BOUNDARY 2006: BUILT BOUNDARY FOR THE GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE, 2006, MINISTRY OF MUNICIPAL AFFAIRS AND HOUSING; GREENBELT: GREENBELT DESIGNATIONS, MINISTRY OF MUNICIPAL AFFAIRS AND HOUSING, DECEMBER 23, 2023


Land cover within all growth areas, 2000
Built up
Wetland
Forest
Agricultural
GROWTH AREAS
Undeveloped growth area to 2051
Undeveloped growth area to 2031
Growth area developed 2000-2024
Whitebelt area not designated for growth
Area unavailable for growth
Built boundary, 2006
Built up area outside of built boundary, 2024
0
20 km
Chippewas of Georgina Island
Pefferlaw
Georgina
Keswick
Mississaugiig | Scugog Island
Uxbridge
Port Perry
Newmarket
Ballantrae
DURHAM
Aurora
YORK
Stouffville
Richmond Hill
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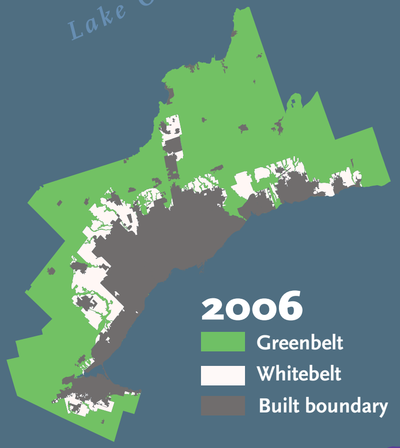
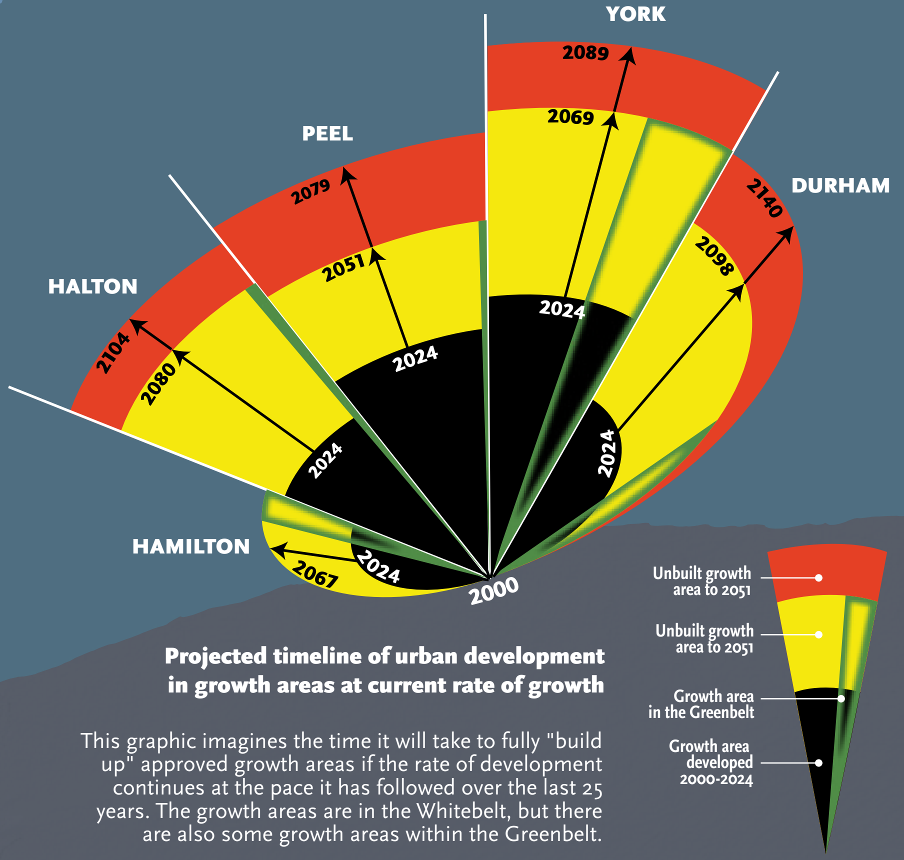
TORONTO


2006
Greenbelt
Whitebelt
Built boundary



Projected timeline of urban development in growth areas at current rate of growth

This graphic imagines the time it will take to fully "build up" approved growth areas if the rate of development continues at the pace it has followed over the last 25 years. The growth areas are in the Whitebelt, but there are also some growth areas within the Greenbelt.

Real-life kaiju

Much of what we know about life half a billion years ago comes from Canada's Burgess Shale.

BY **ABI HAYWARD**
WITH ILLUSTRATION BY **DANIELLE DUFAULT**

It's got three eyes, gills on its butt and wing-like swimming flaps along its segmented body. No, it's not the kaiju Mothra from the Godzilla-verse — but the moth monster did inspire this creature's name. This is *Mosura fentoni*, a 506-million-year-old arthropod predator from Canada's Burgess Shale, a fossil deposit in the B.C. Rockies. Its discovery this past spring by paleontologists at the Manitoba Museum and Royal Ontario Museum sheds light on the diversity of early arthropods, a group that includes modern insects, crabs and shrimps.

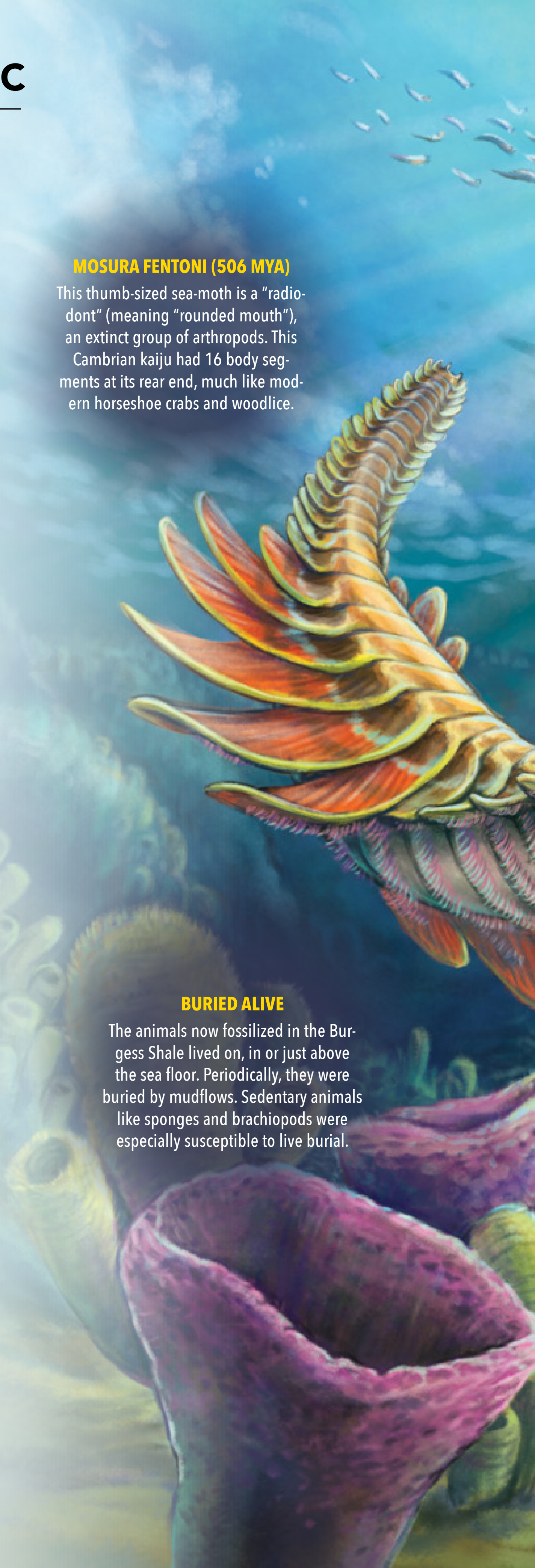
"Arthropods are super successful, evolutionarily speaking," says the Royal Ontario Museum's Jean-Bernard Caron, who co-authored the study chronicling *Mosura*'s discovery. "They're basically like the Swiss army knife of animals. They have all the parts that can evolve in different ways and for different functions. It's just completely crazy."

Animals like *Mosura* may look bizarre to us today, Caron admits, but they have characteristics of modern animals that first appeared half a billion years ago. "If you go back to the Cambrian, all these animals were not weird. They were all the normal things. If I was in the body of *Metaspriggina* [the ancient ancestor of the fish], with its eyes, then everything around me looked pretty normal."

The Burgess Shale, which is about 505 million to 510 million years old, is a treasure trove for paleontologists like Caron because "it represents the roots of our modern diversity," he says. There have been discoveries of Burgess Shale-type fossils elsewhere in the world, "but nothing really beats the quality of preservation and the diversity of the Burgess Shale," says Caron. The preservation is so exceptional that paleontologists can see soft tissue like eyes, guts and brains.

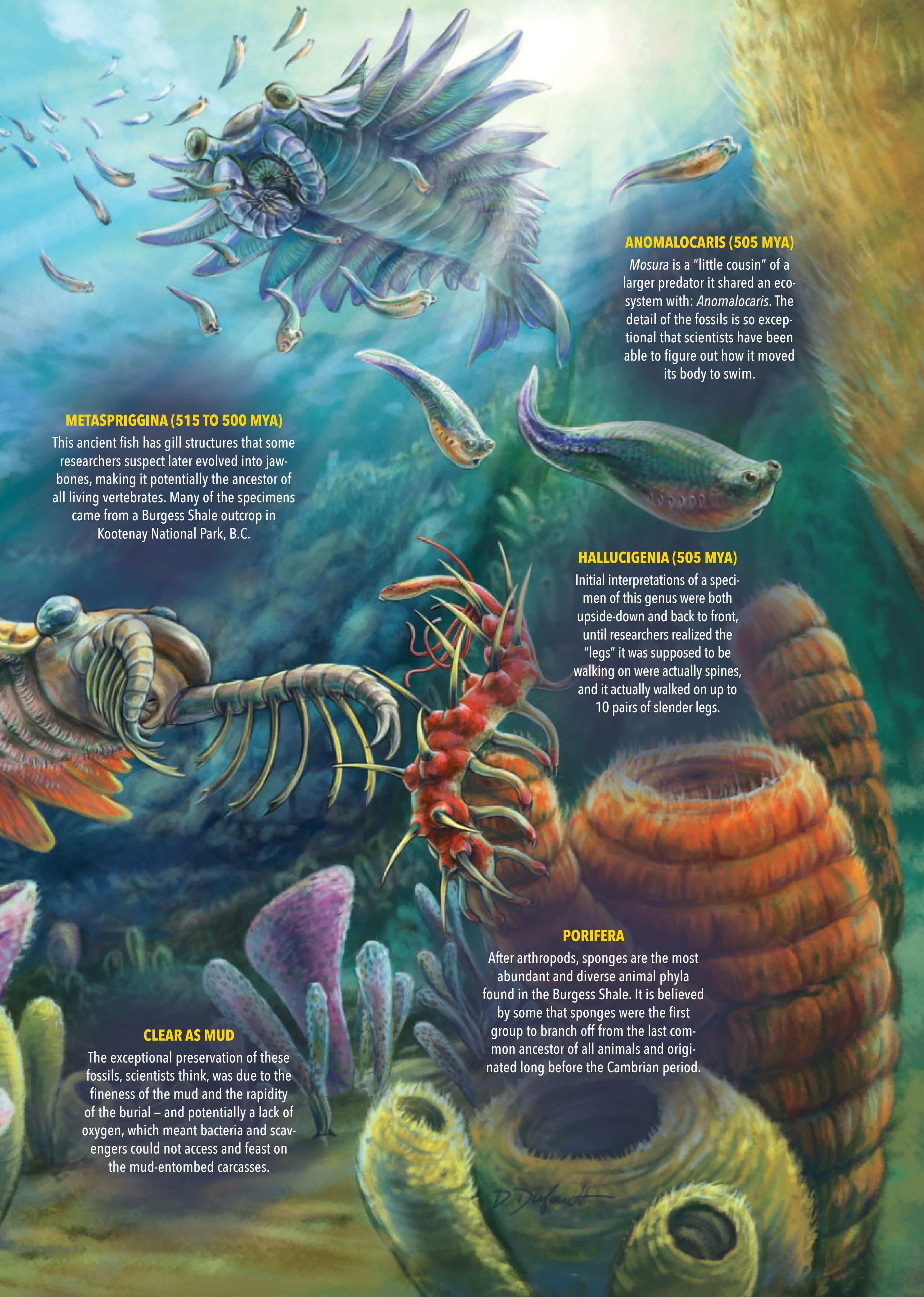
Eyes and brains were characteristics that evolved during the Cambrian period, especially during the "Cambrian Explosion" — a mass radiation of complex life that saw the appearance of almost all major animal phyla. "After the Cambrian, you see all what we call *animals*, organisms which can move around, eat others, have complex feeding behaviours or ecologies. They can walk, they can swim with their appendages, they can see."

This November marks 50 years of Burgess Shale research at the Royal Ontario Museum. "I always compare the Burgess Shale to a bottle of nice Bordeaux wine," says Caron. "With age, it gets even better." ❂



MOSURA FENTONI (506 MYA)
This thumb-sized sea-moth is a "radiodont" (meaning "rounded mouth"), an extinct group of arthropods. This Cambrian kaiju had 16 body segments at its rear end, much like modern horseshoe crabs and woodlice.

BURIED ALIVE
The animals now fossilized in the Burgess Shale lived on, in or just above the sea floor. Periodically, they were buried by mudflows. Sedentary animals like sponges and brachiopods were especially susceptible to live burial.



ANOMALOCARIS (505 MYA)

Mosura is a "little cousin" of a larger predator it shared an ecosystem with: *Anomalocaris*. The detail of the fossils is so exceptional that scientists have been able to figure out how it moved its body to swim.

METASPRIGGINA (515 TO 500 MYA)

This ancient fish has gill structures that some researchers suspect later evolved into jawbones, making it potentially the ancestor of all living vertebrates. Many of the specimens came from a Burgess Shale outcrop in Kootenay National Park, B.C.

HALLUCIGENIA (505 MYA)

Initial interpretations of a specimen of this genus were both upside-down and back to front, until researchers realized the "legs" it was supposed to be walking on were actually spines, and it actually walked on up to 10 pairs of slender legs.

PORIFERA

After arthropods, sponges are the most abundant and diverse animal phyla found in the Burgess Shale. It is believed by some that sponges were the first group to branch off from the last common ancestor of all animals and originated long before the Cambrian period.

CLEAR AS MUD

The exceptional preservation of these fossils, scientists think, was due to the fineness of the mud and the rapidity of the burial – and potentially a lack of oxygen, which meant bacteria and scavengers could not access and feast on the mud-entombed carcasses.

Gentle words

A sincere look at what it means to be Niitsitapii (Real People)

BY **TREVOR SOLWAY**

THE GENTLENESS of the prairies can be felt by all living things. This is true in my grandmother Georgina Solway's earliest memories. The meadowlarks were nature's alarm clock. She recalls the beautiful birds singing as her father George Leather scooted her along her morning routine. When little Georgina idled too long, her dad would tease, "Awanii Sohksiisiimstaan, that meadowlark is telling you to put your stockings on."

My grandma's stories are a doorway into my history, one I can feel the presence of beneath my feet. In her days, people visited — often — and spoke only in Blackfoot. Her grandparents travelled by wagon to visit relatives in Siksika Nation. "It's not like today. Go, go, go. Race over here, race over there," says Solway. "Everything was just the way it is. The way we're supposed to live."

Darrell Breaker, a Blackfoot Elder and ceremonialist, was raised by his grandparents. It's a norm for the grandparents to raise the eldest child. "I was never called by my English name. It was always Siipiyohkomi (Thunder at Night)," says Breaker.

When Breaker recollects his childhood, he describes an age where life moved with intention. There was no power for TVs that informed you of the outside world. There were no cell phones to give your social circle instant access to your life. Breaker's childhood was spent outside learning from his grandparents.

"You didn't have to worry about crime, breaking in, stealing. People had respect," says Breaker. "When we were away, you would notice that somebody came in and made themselves a sandwich, or they would borrow a saddle horse." Breaker's grandparents wouldn't expect payment in return. They believed they would be shown the same kindness down the road.

When Breaker was seven, he entered residential school, an institution that would turn his world upside down.

Clockwise from OPPOSITE: A quiet evening in Siksika Nation; a prairie chicken dancer competes at the World Prairie Chicken Dance in Siksika, Alta.; Georgina Solway visits with her son, Ike Solway.

“I had to learn not to cry. They would say ‘only girls cry.’ You’re supposed to be tough. So residential school taught us not to be compassionate.” Yet he came from an environment where he was spoiled with love by his grandparents. Breaker says despite the abuse he received and witnessed at school, it never severed the connection to his culture. “Once you know the language, how we were raised and cared for, that will always be in you.”

Breaker’s granddaughter recently asked him to teach her Blackfoot swear words. He smiled and told her there ware none. “We didn’t get to that state to have to swear,” says Breaker. “Sure, people get angry. The grandparents would say tsa nistapi, kitomohtaoki'takihpa. They want to know why, how come you’re mad. They want you to talk about it so that you’re released from this anger.” The act of pinpointing your emotions and acknowledging they exist created an emotional awareness that we rarely see in our men today.

Teacher Vivian Ayoungman, also known as Siipiisai’pia’ki, who has committed more than 50 years to revitalizing Blackfoot, says her language takes a gentler approach than English. If a grandparent was correcting a younger relative, they would say, “Tsiki — my son, which is a real term of endearment,” says Ayoungman. “Mohkkitaistotsiip matohksoka’piiwa — what you’re doing is not good. Kitaakohtakanohsi — you’ll hurt yourself. Nitomohtsito’tsipoyi — the reason why I’m bringing this up is kitaisikahkitsihtato, I care about you. The person you’re talking to won’t get angry: they’ll say back nitsiikiniitsiip — I feel so grateful that you care about me. Kitaakksistsiiwakato — I’m going to listen to you because you care about me.”

> “Once you know the **LANGUAGE**, how we were **RAISED** and cared for, that will **ALWAYS BE IN YOU**.”

Ayoungman helped develop the Blackfoot Language Series, a toolkit created for the Siksika Board of Education and used in school systems. She also developed a multimedia app called The Blackfoot App that includes photos, videos, audio works and games. “A lot of our words are real gentle words and are a window into who we are and into our past.”

Breaker estimates three-quarters of his generation are gone now because of their addictions due to the wounds of residential school. He believes Blackfoot ceremonies and the Creator saved his life.

“I realized that the Creator knew there were things in me that needed releasing,” says Breaker. During a Blackfoot sweat ceremony, an Elder told him he needed to let go of the past. Tomorrow is a new day to be grateful for.

Today, Breaker shares his experiences and mentors young men dealing with addictions through the Siksika Justice Department.

For me, learning my language helps me better understand myself — especially when our Elders make it sound like sweet poetry.

One evening, after a thunderous rain storm, a rainbow stretched across the sky. I asked my grandma what the Blackfoot word for rainbow is. Instead of giving me a word-for-word translation, she described to me a feeling like “the worst of it is over.” She stopped for a second and looked up. “It really is something to see a rainbow. It’s not just a pretty picture. It’s an understanding of the way the Creator works.” ✵

Discovery Language is supported by the Office of the Commissioner of Indigenous Languages.

TREVOR SOLWAY

A male owl photographed in 2003 in Birkenhead Lake Provincial Park, which was too small to provide an adjacent territory for its young. Both died within a year.

THE POWER OF ONE

NOT SEEN SINCE 2023, THE LAST NORTHERN SPOTTED OWL IN BRITISH COLUMBIA IS LIKELY GONE. BUT SHE REMAINS A POIGNANT SYMBOL AND A MOTIVATING FORCE.

BY **BRAD BADELT**
PHOTOGRAPHY BY **JARED HOBBS**

A FEW KILOMETRES down a muddy trail snaking through old-growth Douglas firs and cedars, Jared Hobbs stops and tilts his head back. A moment later, he lets out a resounding whoop. "Hoo … hoo, hoo … howoooo!" It's the four-note call of a northern spotted owl, and it seems to hang in the muggy August air like an echo. Which, in a way, it is.

The trail leads through a deep valley on the edge of the Cascade Mountains, once a stronghold for spotted owls. Before European contact, there were an estimated 1,000 spotted owls in Canada, all of them in southwestern British Columbia. Hobbs, who has the slightly dishevelled look of a seasoned wildlife biologist, has spent more time observing them than likely anyone else in the country. Known for their polka-dotted plumage, spotted owls tend to be reclusive but also surprisingly unafraid of humans — a "charismatic species," as Hobbs calls them. He describes encounters over the years with young spotted owls, which were apt to perch near him as he wandered in their woods, seemingly as curious about him as he was about them.

There are three subspecies of spotted owls, with the range of the northern spotted owl extending from northern California to B.C. But their habitat is narrowly specific: they nest and hunt only in mountainous old-growth forests. Unable to build their own nests, the owls instead make their homes in the hollows or broken-off tops (known as "baskets") of centuries-old conifers. The generous spacing between these forest giants is also ideal for their metre-wide wingspan.

As we walk through the forest, Hobbs consults a GIS map on the tablet he carries with him; it's peppered with dots showing the nest sites he's found over the last two decades, including one nearby. But the last actual owl sighting at this nest was recorded more than a decade ago.

It's no news to anyone that since the advent of industrial logging, British Columbia's old-growth forests have been steadily disappearing — and so, too, have the spotted owls that rely on this habitat. Today, there may be just one wild spotted owl in all of B.C. — a female, last seen in the Fraser Canyon about 40 kilometres north of where Hobbs is standing.

"All I see are ghosts now," says Hobbs, gesturing towards the towering trees that surround us.

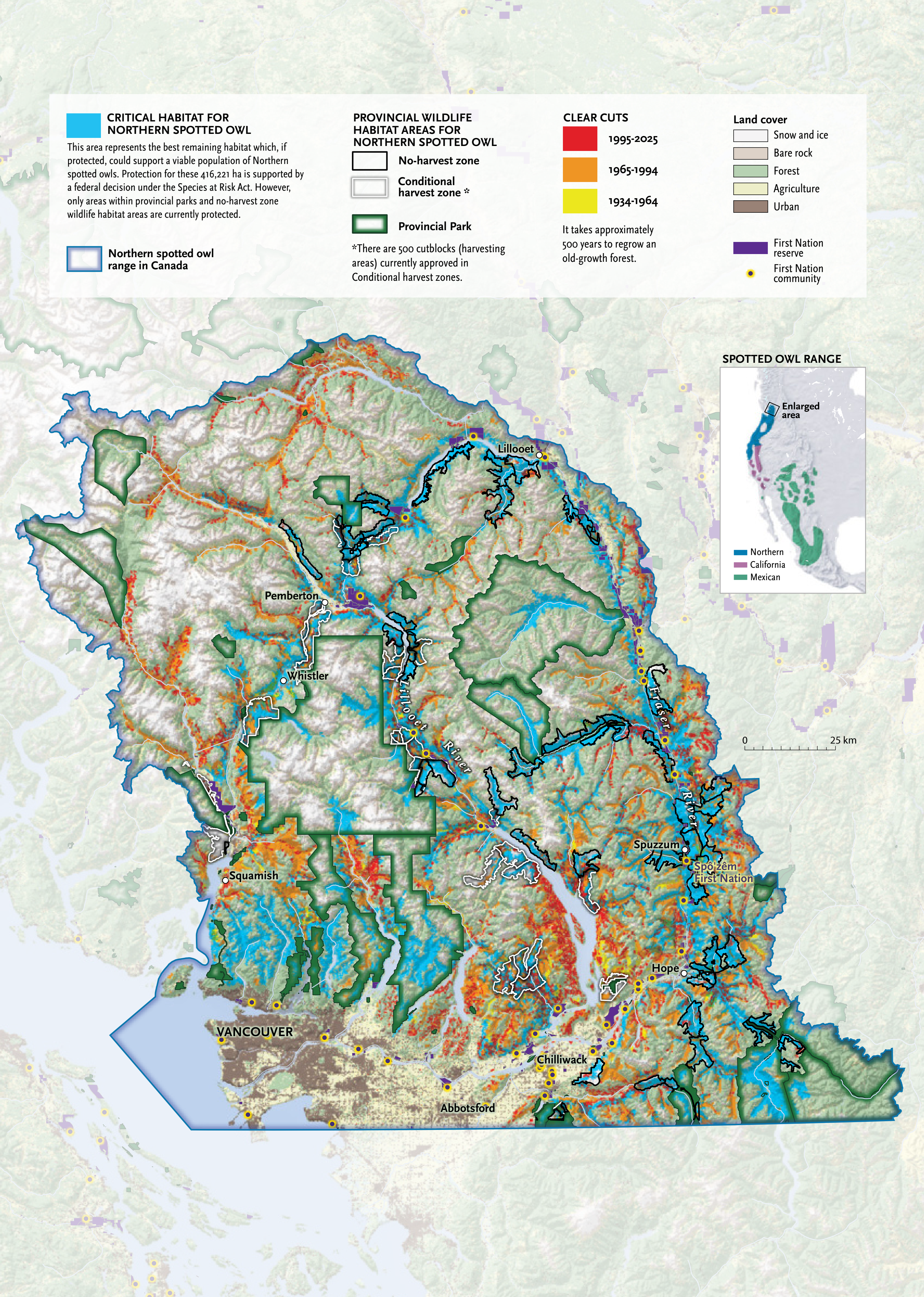
Jared Hobbs (BOTTOM RIGHT) has mapped (BOTTOM LEFT) spotted owl nesting sites for more than three decades. A male guards a nest site (TOP) in an old-growth Douglas fir.

BOTTOM LEFT AND RIGHT: BRAD BADELT; MAP: CHRIS BRACKLEY/CAN GEO. MAP DATA: WILDLIFE HABITAT AREAS: B.C. TERRESTRIAL SPECIES RECOVERY TEAM: CRITICAL HABITAT FOR FEDERALLY-LISTED SPECIES AT RISK, ENVIRONMENT CANADA, 2024-08-13; HARVESTED AREAS OF B.C. (CONSOLIDATED CUTBLOCKS): FOREST ANALYSIS AND INVENTORY BRANCH, JULY 24TH, 2025; SPOTTED OWL RANGE IN CANADA: CANADIAN SPOTTED OWL RECOVERY TEAM, 2006; SPOTTED OWL RANGE 2025: IUCN RED LIST, VERSION 3, AUGUST 27, 2025.

WHEN HOBBS began studying spotted owls in the mid-1990s, there were around 30 breeding pairs in the province. In the early 2000s, he worked as a wildlife biologist for the B.C. government, slogging through rough terrain to find and map spotted owl nest sites, data the province could use to protect the surrounding habitat from logging and other activities like mining.

The work was gruelling and time-consuming. By his estimate, Hobbs spent more than 200 nights a year sleeping in a tent or under the stars. He faced other challenges, too. His truck tires were slashed, and his truck doors keyed. He once woke up to find the remains of a spotted owl placed on a stump near his tent site. The culprit was never found, though it's a good bet it was someone affiliated with the logging industry. Still, despite the obstacles, Hobbs and his team were able to put together a detailed map showing roughly 20 nest sites across the owl's range.

That map was used by the province to update its spotted owl recovery plan, released in 2006. The plan identified some 300,000 hectares (3,000 square kilometres) of habitat to be protected and launched a new captive breeding program for spotted owls. But it wasn't nearly enough, Hobbs says. A good-sized portion of the protected area had already been logged,



CRITICAL HABITAT FOR NORTHERN SPOTTED OWL

This area represents the best remaining habitat which, if protected, could support a viable population of Northern spotted owls. Protection for these 416,221 ha is supported by a federal decision under the Species at Risk Act. However, only areas within provincial parks and no-harvest zone wildlife habitat areas are currently protected.

Northern spotted owl range in Canada

PROVINCIAL WILDLIFE HABITAT AREAS FOR NORTHERN SPOTTED OWL

No-harvest zone

Conditional harvest zone *

Provincial Park

*There are 500 cutblocks (harvesting areas) currently approved in Conditional harvest zones.

CLEAR CUTS

🟥 1995-2025

🟧 1965-1994

🟨 1934-1964

It takes approximately 500 years to regrow an old-growth forest.

Land cover

Snow and ice

Bare rock

Forest

Agriculture

Urban

First Nation reserve

● First Nation community

SPOTTED OWL RANGE
Enlarged area
Northern
California
Mexican
Lillooet
Pemberton
Whistler
Lillooet River
Fraser River
0
25 km
Spuzzum
Spô'zêm First Nation
Squamish
Hope
VANCOUVER
Chilliwack
Abbotsford

he says, so although it was protected, there were no old-growth trees there to provide viable spotted owl habitat. The plan identified these areas as “potential habitat,” but, as Hobbs points out, any new trees will not provide habitat for hundreds of years. Other areas with suitable old-growth forest that should have been protected in the plan were not, Hobbs says, a casualty of the logging lobby (the industry continues to harvest in areas federally designated as critical habitat).

Their habitat is narrowly specific: they nest and hunt only in mountainous old-growth forests.

With a flawed recovery plan in place, the spotted owl population continued to plummet. The feeling among many conservationists was that the province was still committed to prioritizing logging, driving the spotted owl to extirpation while the federal government chose not to interfere. “The spotted owl is like the canary in the coal mine,” Hobbs says. “It’s sending us a very strong message that we’re not managing old-growth ecosystems properly, and I think we owe it to the owl to listen.”

In 2021, the environmental law charity Ecojustice, in partnership with the Western Canada Wilderness Committee and Spô'zêm First Nation, launched a lawsuit against the federal government, alleging the government had failed to enforce protections under its own Species at Risk Act. In June this year, the Ministry of Environment and Climate Change released an updated spotted owl recovery strategy that calls for 400,000 hectares (4,000 square kilometres) of forest to be protected for spotted owls, including nearly double the protected area outside of provincial parks (the parks already act as protected areas because no logging is allowed within them) than was set out in the provincial plan. For Hobbs, the release of the federal plan provides a glimmer of hope after decades

Spotted owls nest only in the hollows or broken-off tops of centuries-old conifers (OPPOSITE, BOTTOM and TOP LEFT). This old growth has been decimated by logging (OPPOSITE TOP). Photographed in May 2023, this fledgling (ABOVE) was a month old.

of frustration. But with just one wild spotted owl left, it may be too little too late.

UNTIL FAIRLY RECENTLY, little was known about spotted owls. They rose from obscurity to fame — or notoriety, depending on your perspective — during the so-called timber wars in the western United States during the 1980s and '90s. The timber wars pitted environmentalists against loggers in a bid to save old-growth forests across Washington, Oregon and northern California. The reclusive spotted owl, with its reliance on centuries-old conifers, became the poster child for that battle, its survival used as the rationale for halting the march of chainsaws through these last stands of ancient forest. Prior to the timber wars, which made headlines across North America, few people had ever heard of the owls, and even fewer had ever seen one.

Eric Forsman, professor emeritus at Oregon State University, was an outlier. He has long been fascinated by the spotted owl, which he first encountered in the late 1960s while working as a fire lookout in the Cascade Mountains. "As luck would have it, there was a pair of spotted owls that occupied the area," says Forsman. "One night I heard them calling, and that was the first time I had ever heard one clearly." He returned the call, and shortly after, a pair of spotted owls appeared outside his cabin door, welcoming their new neighbour.

Forsman decided to focus on spotted owls for his graduate thesis. He spent the next several years hiking through the mountains to observe them, count them, study their pellets for clues about their diet and tag fledglings to better understand their travel patterns. "At that point in time, no one had ever really done any long-term serious research on spotted owls," he says. "There was very little known about them, and pretty much everything that we learned was new and exciting and interesting."

Forsman found that spotted owl populations in the Pacific Northwest were declining at an alarming rate, largely due to habitat loss. He and other scientists studying spotted owls suspected the patchwork of old-growth forests left behind after logging was forcing young spotted owls to travel farther to find suitable homes, crossing broad expanses of clearcut. On these journeys, they were vulnerable to larger avian predators such as great

Brad Badelt is a freelance journalist based in Vancouver. Jared Hobbs (jhobbsecological.com) is a biologist and wildlife photographer specializing in conservation and management of species at risk in B.C.

Stein River Nlaka'pamux Heritage Park (ABOVE) has one of the last best tracts of old-growth forest in B.C.; this female (OPPOSITE PAGE) was last seen in Sumallo Grove, B.C., in 2007.

horned owls, red-tailed hawks and golden eagles, as well as to starvation. If logging continued unabated, Forsman predicted old-growth forests would be gone in the Pacific Northwest within a few decades, and so, too, would the spotted owl.

In 1990, the U.S. federal government listed the spotted owl as a threatened species and, thanks to the work of Forsman and his colleagues, put the brakes on old-growth logging within its habitat. Not surprisingly, the decision was controversial. Industry experts predicted it would cost up to 30,000 jobs. Protests broke out in small towns whose population's livelihoods were tied to logging (a popular bumper sticker and T-shirt at the time read "Save a logger, eat an owl"). "When I started out, I certainly didn't have a clue that it was going to end up basically bringing about a sea change in terms of how we manage our forest down here in the States," says Forsman of his research.

Yet despite the protections in place, the northern spotted owl population in the U.S. has also continued to drop. Adding to the spotted owls' challenges are barred owls. The bigger owls are better adapted to a fragmented landscape and have expanded west from their eastern range, displacing spotted owls, disrupting their nesting and out-competing them for food. Earlier this year, the U.S. Fish and Wildlife Service announced plans to cull as many as 450,000 barred owls over the next 30 years in an effort to save spotted owls. The proposal has been met with pushback from some environmental and animal welfare groups. But government scientists argue that if barred owls aren't removed, the imperilled spotted owl could go extinct in our lifetime. The B.C. government is taking a similar tack: as of 2023, 80 barred owls had been killed, with plans to continue culling and relocating in the future.

"All I see are **ghosts now**."

THIS PAGE, RIGHT: GREG KING; OPPOSITE: JOE FOY, WILDERNESS COMMITTEE

Forsman agrees barred owls pose a serious threat. But unless sufficient spotted owl habitat is protected, he says that simply culling a predator is unlikely to save the spotted owl. “My sense of what’s going on in British Columbia is that except for relatively small reserve areas, the old forests are still being harvested quite rapidly.”

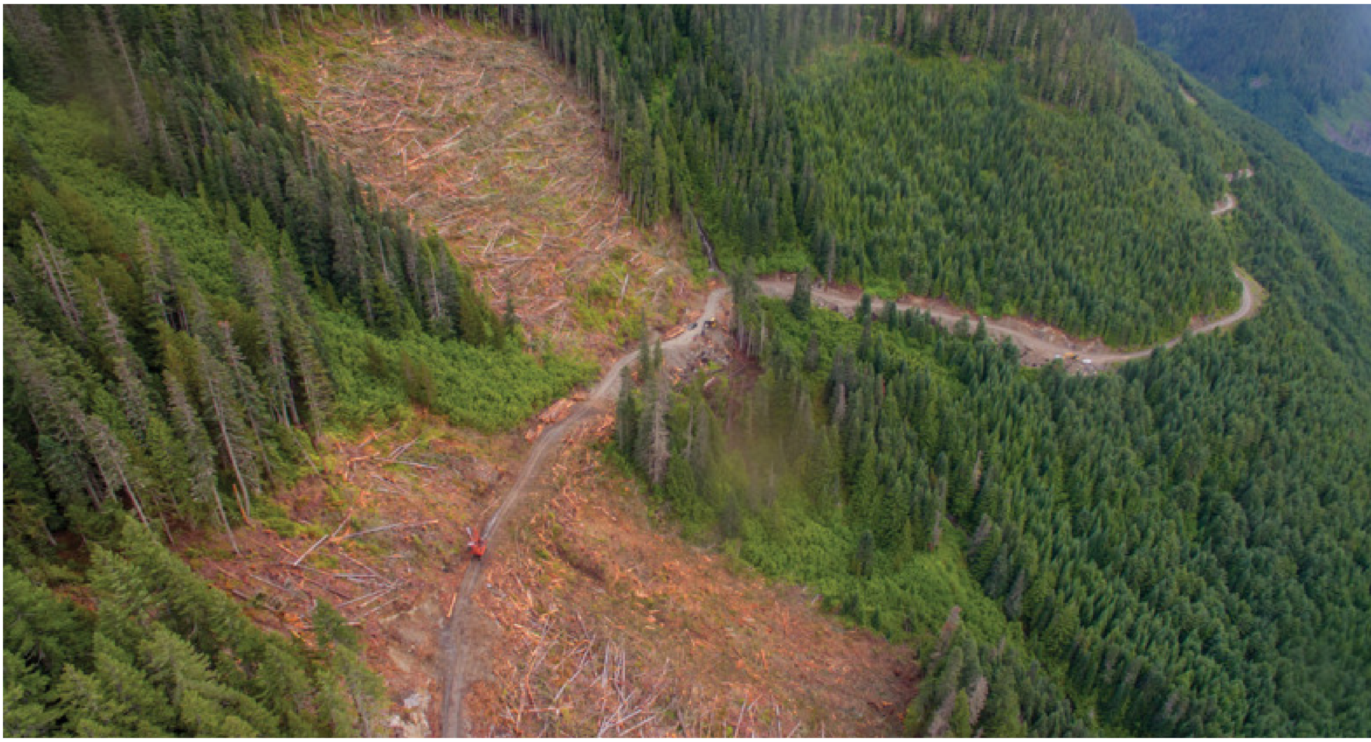
THE LAST WILD spotted owl in Canada lives in an undisclosed forest somewhere near the town of Spuzzum, B.C. Or perhaps not.

If she’s still alive, the female, known as Skelúleʔ (sku-loo-la) from the word for owl in the Nlaka’pamux language, would be about 12 years old, making her a senior citizen when it comes to spotted owls. She was last seen by researchers in the summer of 2023.

The mountainous landscape where Skelúleʔ lived can be a harsh environment, particularly in the winter. Squirrels and packrats — the favoured prey of spotted owls — tend to burrow deep into the snow when temperatures dip below zero. And frequent icy cold snaps can be lethal to an older bird struggling to find food. But it’s not impossible to think that she is still out there, perhaps wondering where all her kin have gone. Skelúleʔ had shown herself to be remarkably tough, after all. A survivor, in the truest sense.

> “If the forest isn’t healthy, then we know we’re not healthy.”

“The spotted owl is part of our stories of origin,” says James Hobart, a former chief of the Spô’zêm Nation. He remembers hearing their calls in the night when he was young. “There were stories of spotted owls stealing kids for being too noisy at night,” he says. “My mom used to terrify me when she’d tell that story, but whenever we heard an owl scream, we knew to be quiet.”

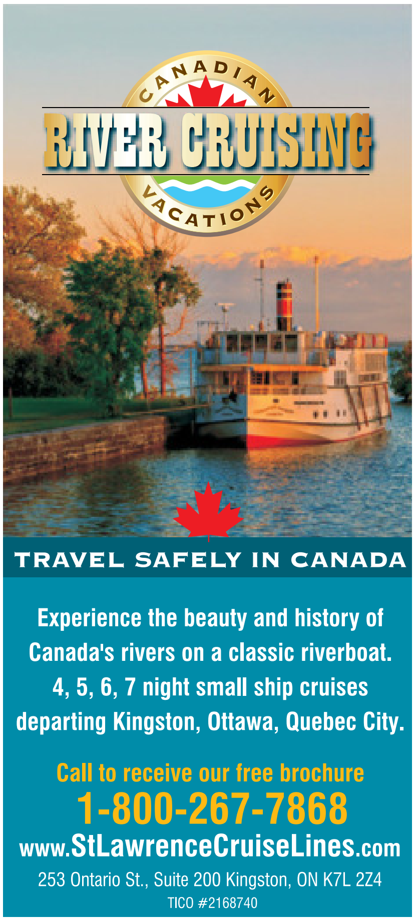


Cutblocks (ABOVE) in Spuzzum Valley, the last known location for a breeding pair of spotted owls in Canada; a young owl (OPPOSITE LEFT); protestors block a logging truck (OPPOSITE RIGHT) in California, 1989.

Hobart has been a long-time advocate for protecting spotted owls. Last year, he successfully pushed the province and federal government to halt logging of spotted owl habitat within the Spô'zêm Nation's territory in the Fraser Canyon. Spotted owls are considered spirit messengers from the tree canopy, Hobart explains. Just as salmon are indicators of a river's health, Hobart says owls tell us about the state of a forest. "They represent to us an oversight for the medicines that we harvest from the old growth. If the forest isn't healthy, then we know we're not healthy."

In 2022, the recovery and breeding centre run by the province released three captively raised spotted owls in the Spô'zêm territory, where a large aviary has been built to temporarily house them. Sadly, two of the owls didn't survive their first winter, and the third was found injured on a nearby roadway and returned to the captive breeding centre, about two hours west in Langley, B.C. Since launching in 2007, the program has yet to successfully introduce a single bird into the wild. Indeed, the captive breeding program has endured numerous challenges. Spotted owls appear to mature more slowly in captivity, for example, taking up to eight years to reach breeding age (compared with three in the wild). There has also been a lower rate of eggs hatching healthy chicks. And the trickiest step of all might be releasing a captively raised bird into the wild, where it must quickly learn to hunt for its own food and avoid predators.

Despite the setbacks, Hobart remains hopeful. Work is underway to expand the aviary in Spô'zêm Territory so captive owls can spend more time there before being released, which Hobart believes will ease the transition and give the birds a better chance of thriving. "We're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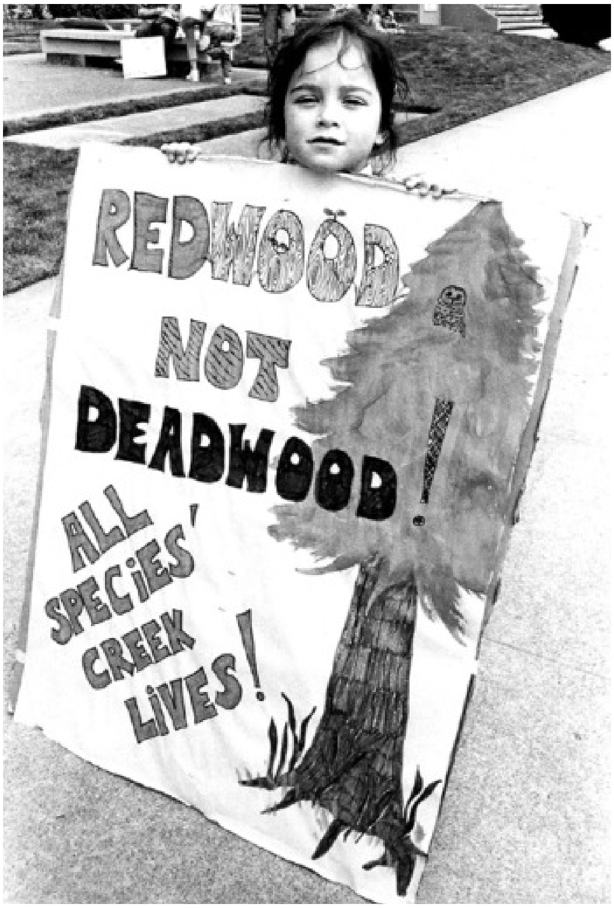

TRUDEAU:
PROTÉGEZ LA NATURE,
PASSEZ UNE LOI!
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THIS PAGE, TOP LEFT, RIGHT AND BOTTOM RIGHT: GREG KING; BOTTOM LEFT: ©TOMA ICZKOVITS/GREENPEACE

learning," he says. "We're still adamant that we can do this."

As the saying goes, where there is life, there is hope. Joe Foy knows that better than most. A campaigner with the Western Canada Wilderness Committee since the late 1980s, he has endured his share of disappointment — the federal list of wildlife species at risk now includes 299 endangered species, with 23 of those already extirpated (no longer found in the wild in Canada). Every year, that list grows longer. And yet Foy notes that another charismatic local is, for him, a model of what's possible when everyone comes together.

By the early 1900s, the fur trade had decimated the global population of sea otters, taking it from upwards of 300,000 to just 2,000 by the early 20th century. Along B.C.'s coast, sea otters were wiped out entirely, the last one shot in 1929. But in recent decades, the B.C. population has staged a remarkable recovery, ballooning to 8,000 after just a few dozen otters were transplanted from Alaska in the 1960s. "Because we still had the habitat and because they still existed in the U.S., they're back, and their range is expanding," says Foy. "With spotted owls, it's why we argue the number one thing is nailing down the habitat."

Foy began campaigning to protect spotted owls in B.C. in the mid-1990s, after seeing the protection measures enacted in the U.S. But there are clear differences between the two countries in terms of how species at risk are managed, he says. For starters, Canada didn't have its Species at Risk Act until 2002 — nearly 30 years after the U.S.

OPPOSITE: Protests to save spotted owl habitat in front of Rideau Hall, Ottawa, in 2024 (BOTTOM LEFT) and in northern California in the 1980s and 90s. This tree (BOTTOM LEFT), ringed by activists in 1989, was logged soon after. **THIS PAGE**: An owl swoops down on prey, likely a bushy-tailed woodrat, at its nest grove.

Endangered Species Act. And unlike the U.S., Canada delegates much of its authority to protect species to the provinces, which, Foy says, can lead to a patchwork approach. “The federal government doesn’t come in with a heavy hand,” he says. “It tries to coax and mince around various issues, and that’s resulted in a very dire state for our species at risk.” Still, he hopes the federal government’s updated spotted owl recovery strategy will be a turning point, a case of “build it and they will come.” Though the forests are silent now, perhaps that 400,000 hectares contains enough contiguous old-growth habitat to support just one pair of spotted owls. It would be a start.

FOR MUCH OF OUR HIKE, Jared Hobbs can’t resist calling out for spotted owls. “Old habit,” he says, with a shrug. Each time, his call is met with silence. After about two hours of hiking, including a stretch of bushwhacking, we eventually find the tree where he’d located a spotted owl’s nest years ago. It’s an old cedar with a hollow nook partway up, where a branch had broken off.

“This is the one,” Hobbs says, glancing up from his GIS. The nest, however, is long gone — likely blown down in a windstorm. The empty nook stands as a reminder of how quickly the evidence of a species can disappear. “It’s sad that it’s not here,” Hobbs says as we sit down for lunch. “But it’s also amazing to be here in this place and get to tell the owl’s story. I think it’s appropriate.”

He launches into a description of one of the spotted owl’s most remarkable traits: its hearing. As nocturnal hunters, spotted owls rely heavily on their hearing to locate prey. The feathers that ring their head — known as a facial disc — help direct sound to their ear openings. The openings themselves are slightly offset, which helps the owl to precisely triangulate where a sound is coming from — even the faintest rustling of a tiny mouse beneath the snow.

“I have no doubt of the owl’s ability to hear,” says Hobbs, looking up at the tree. “But I wonder if we’ll hear the message the owl is trying to tell us.”

We eventually pack up and wind our way back out the trail. Hobbs calls out the four-note hoot of the spotted owl the entire way. ❂

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Fresh snowfall at Fort Amherst Lighthouse, which overlooks the Narrows, the channel leading to St. John's Harbour.

* **Leona Rockwood**/Can Geo Photo Club
St. John's, N.L.

CANADIAN Wildlife PHOTOGRAPHY OF THE YEAR 2025

Canadian Geographic honours the winners of our annual wildlife photo competition

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A Canada lynx leads its family through a snowstorm. A common merganser chick dives in search of a meal. A wildfire consumes moss on a rock face in a scene of deadly beauty. The winning images of *Canadian Geographic*'s 2025 Canadian Wildlife Photography of the Year competition offer a tantalizing glimpse into the secret lives of animals and the natural processes that shape our world.

One photographer's body of work stood out among all the entries. The 2025 Canadian wildlife photographer of the year is Maxime Légaré-Vézina of Quebec City, who has begun a two-year term as the Audain emerging photographer-in-residence with *Canadian Geographic*. Thanks to the generous support of the Audain Foundation, whose conservation mandate is focused on British Columbia, Légaré-Vézina will have the opportunity to shoot on assignment for *Canadian Geographic* in B.C. and participate in talks and exhibitions.

Read on to learn more about Légaré-Vézina's journey as a photographer and to see the photos that most impressed our judges: wildlife photographers John E. Marriott, Ryan Tidman and Jenny Wong, as well as the editorial staff of *Canadian Geographic*.

MAXIME LÉGARÉ-VÉZINA

CANADIAN WILDLIFE PHOTOGRAPHER

OF THE YEAR **2025**

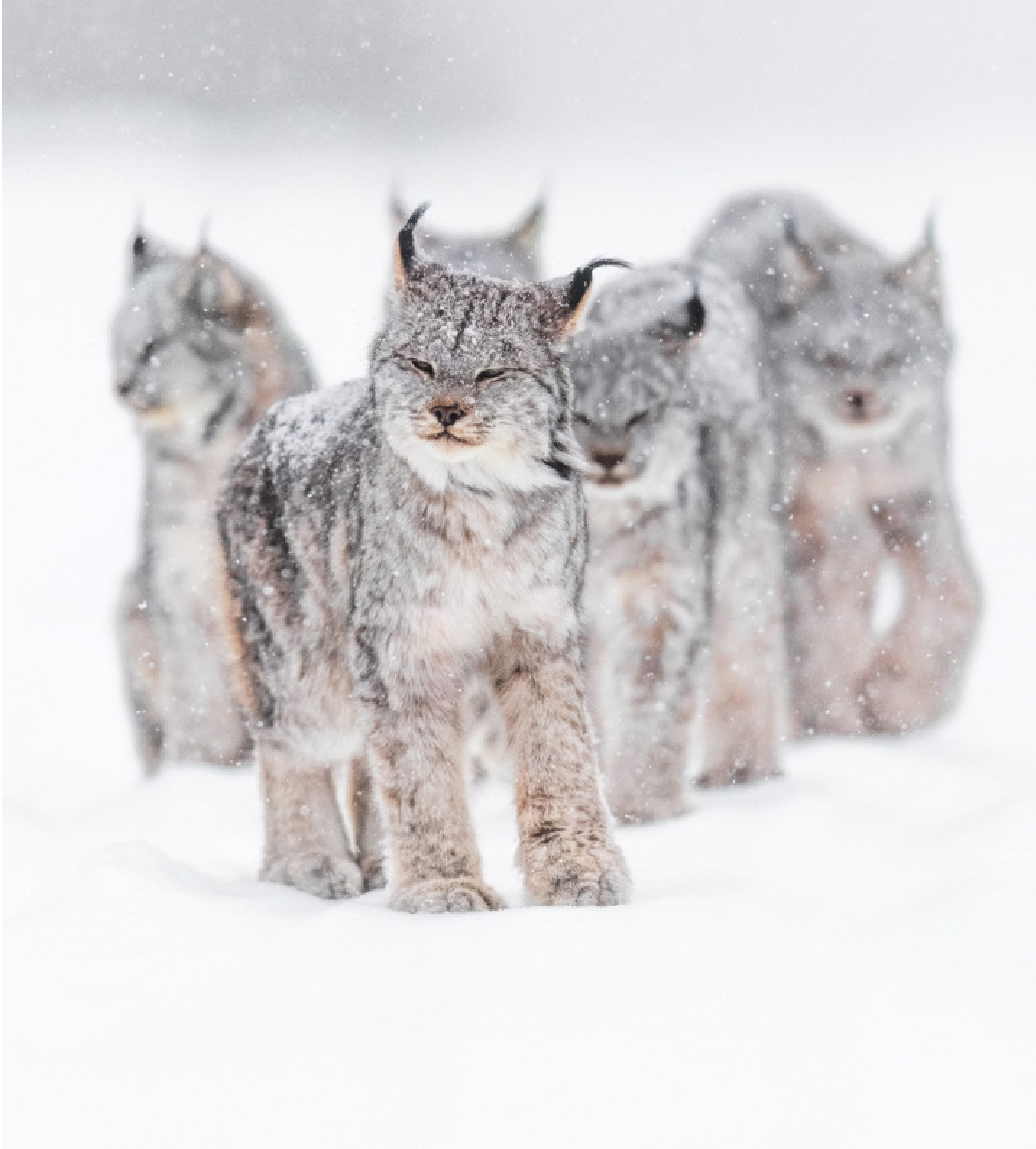
Early morning light spilled across the wild coast of northern Vancouver Island, painting the sky pink and mountains lavender as bands of fog rose from a tranquil sea. Moving quietly and carefully along the rocky shore, Maxime Légaré-Vézina took in the dreamlike scene. The wildlife photographer had ventured west from his home in Quebec City hoping to photograph one thing: bears.

After nearly an hour of walking, he sensed movement: it was a lone black bear, silhouetted against the sunrise. “The bear got closer and closer, then it looked up at me,” says Légaré-Vézina. “That’s when I got the shot.” Captured with a 600mm lens and a 1.4x teleconverter, the resulting portrait is captivating and intense. Half the bear’s face glows gold, the other half is in shadow. “It’s probably in my top 10 photos of all time,” says Légaré-Vézina. “Everything lined up exactly as I wanted.”

Légaré-Vézina’s photography journey began more than a decade ago, ahead of a trip to Australia and New Zealand. “Back then, the iPhone was not as great at photographing as it is today,” he says. “So, I got my first camera [a Pentax K-r] and started playing around with it.”

What began as a casual hobby quickly morphed into a passion; three years ago, the 36-year-old left his banking job to pursue photography full-time. Since then, he’s devoted himself to observing wildlife, learning about animal behaviour and honing the patience needed to capture unique portraits of his subjects in their natural habitats. How’s it going? “So far, so good — I’m not bankrupt yet!” he jokes.

As part of his prize, Légaré-Vézina begins a two-year term as the inaugural Audain emerging photographer-in-residence with *Canadian Geographic*, a role that will see him pursue more bucket list shots. “There are so many places in Canada I want to photograph,” he says. “My passion is … to travel, discover new places, new species and live this life of adventure.”

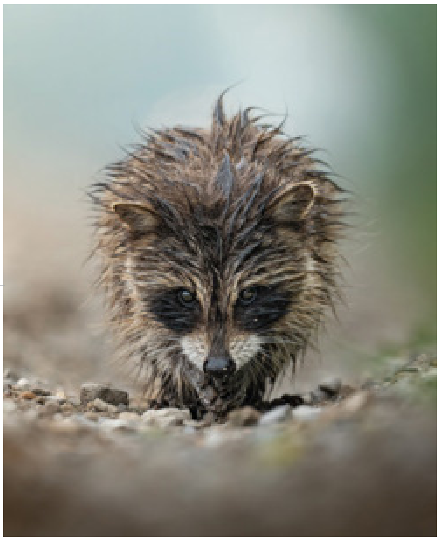


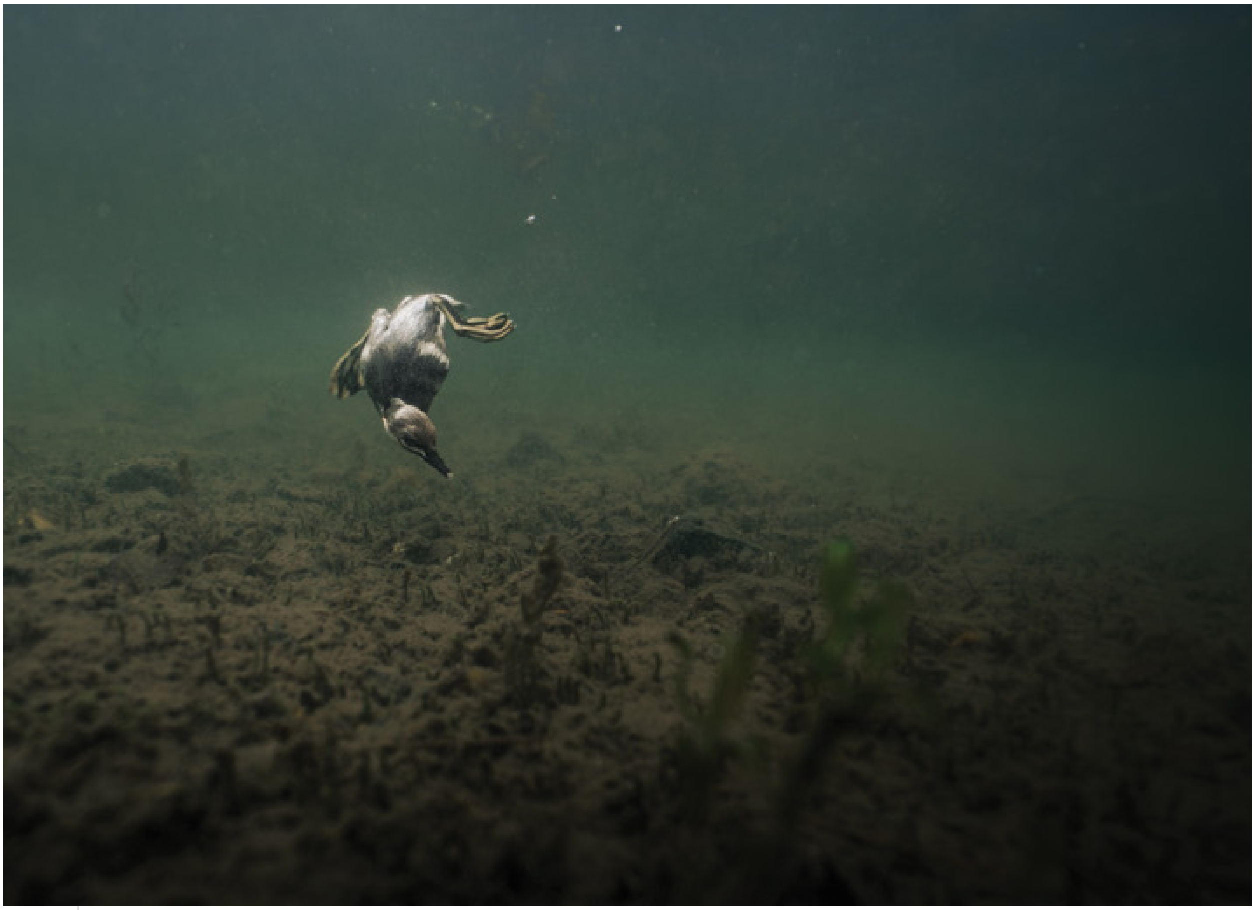
TERRESTRIAL LIFE | WINNER

Jean-Simon Bégin
A Canada lynx leads her kittens out of the northern Ontario forest during a heavy snowfall. Lynx have broad, snowshoe-like paws that enable them to move quickly and quietly through deep snow.

TERRESTRIAL LIFE | RUNNER-UP

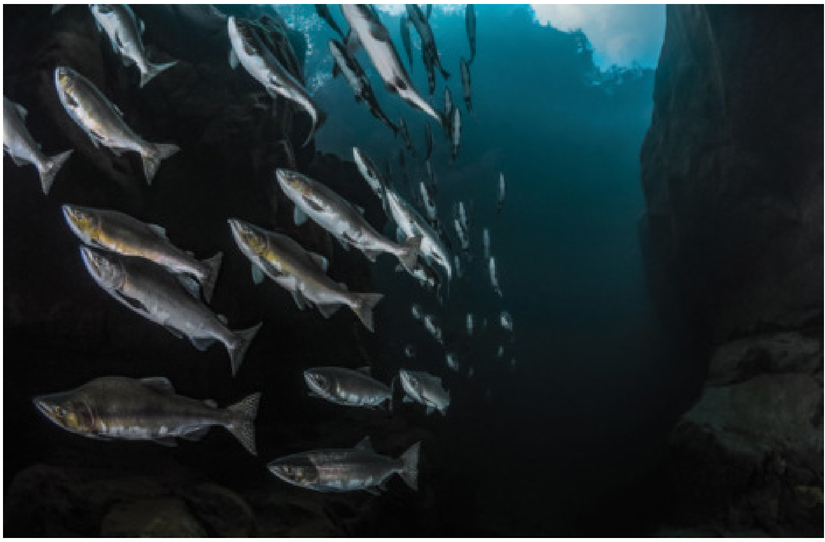
Reece Buruma
A raccoon kit, soaked from a recent rainfall, forages at Marthaville Habitat Management Area in Petrolia, Ont.





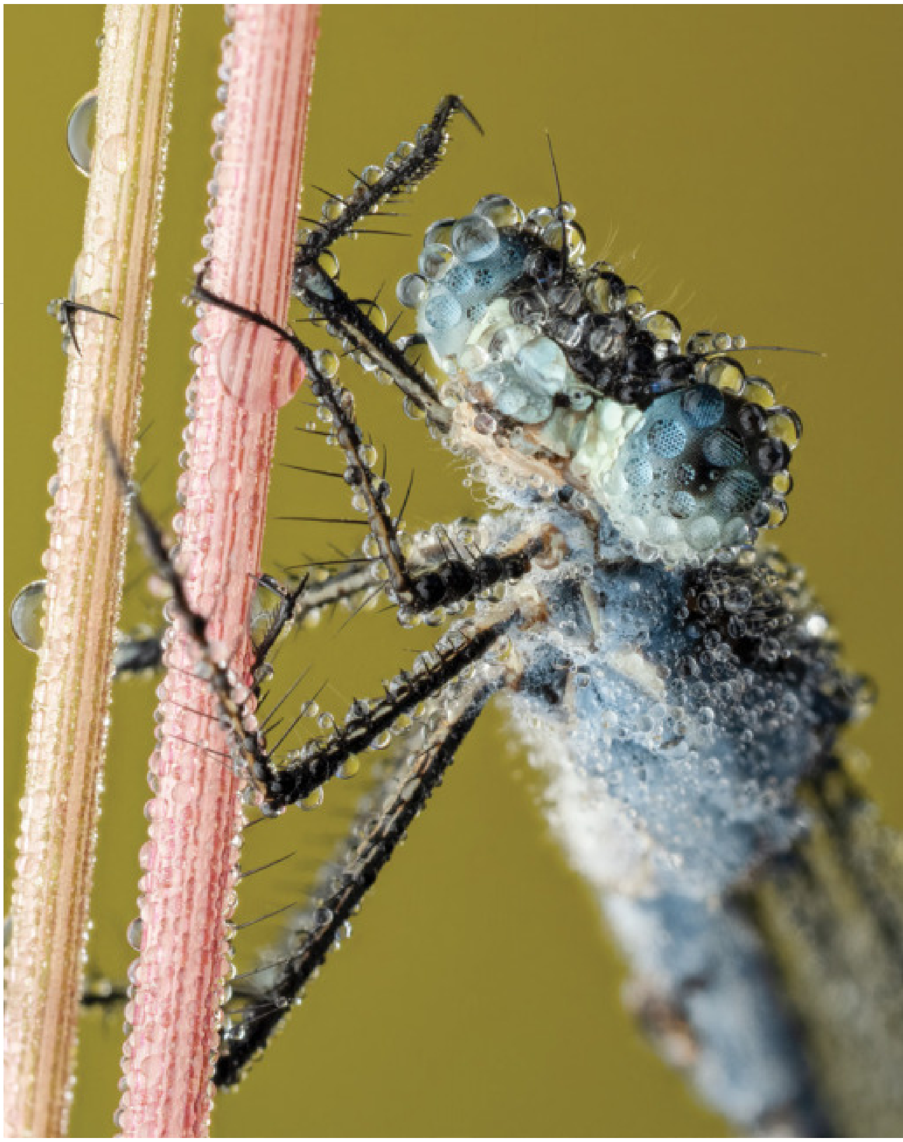
AQUATIC LIFE | WINNER

Alex Côté
A common merganser chick dives in search of juvenile bass in the shallows of Quebec's Lac Memphrémagog — a risky endeavour, according to the photographer. "On several occasions, the adult bass tried to eat the little chicks, but the mother managed to rescue them in time!"



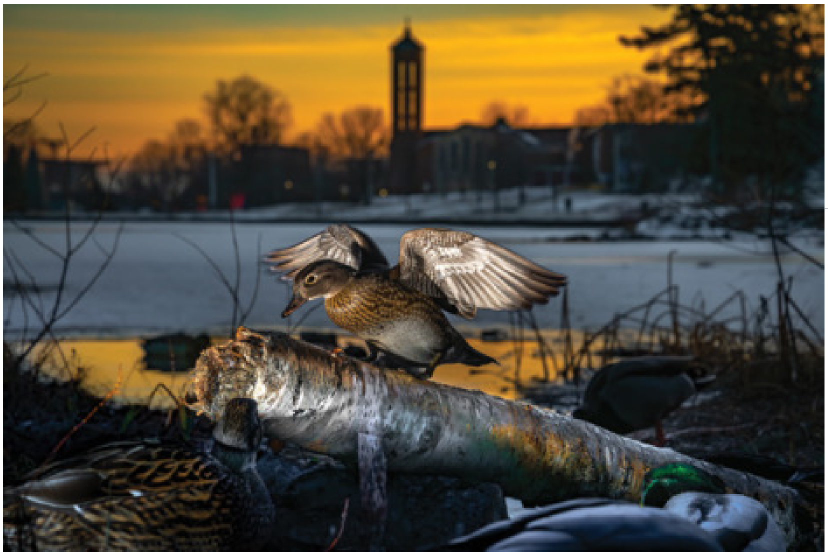
AQUATIC LIFE | RUNNER-UP

Maxwel Hohn
Salmon migrate up B.C.'s Campbell River to spawn. The photographer hid in the shadows of a canyon to capture the fast-moving fish.



THINGS WITH WINGS | WINNER

Leslie Poulson
A northern spreadwing is coated in droplets of morning dew in B.C.'s South Chilcotin Mountains. This damselfly is found at high elevations and near ponds and lakes throughout Canada.

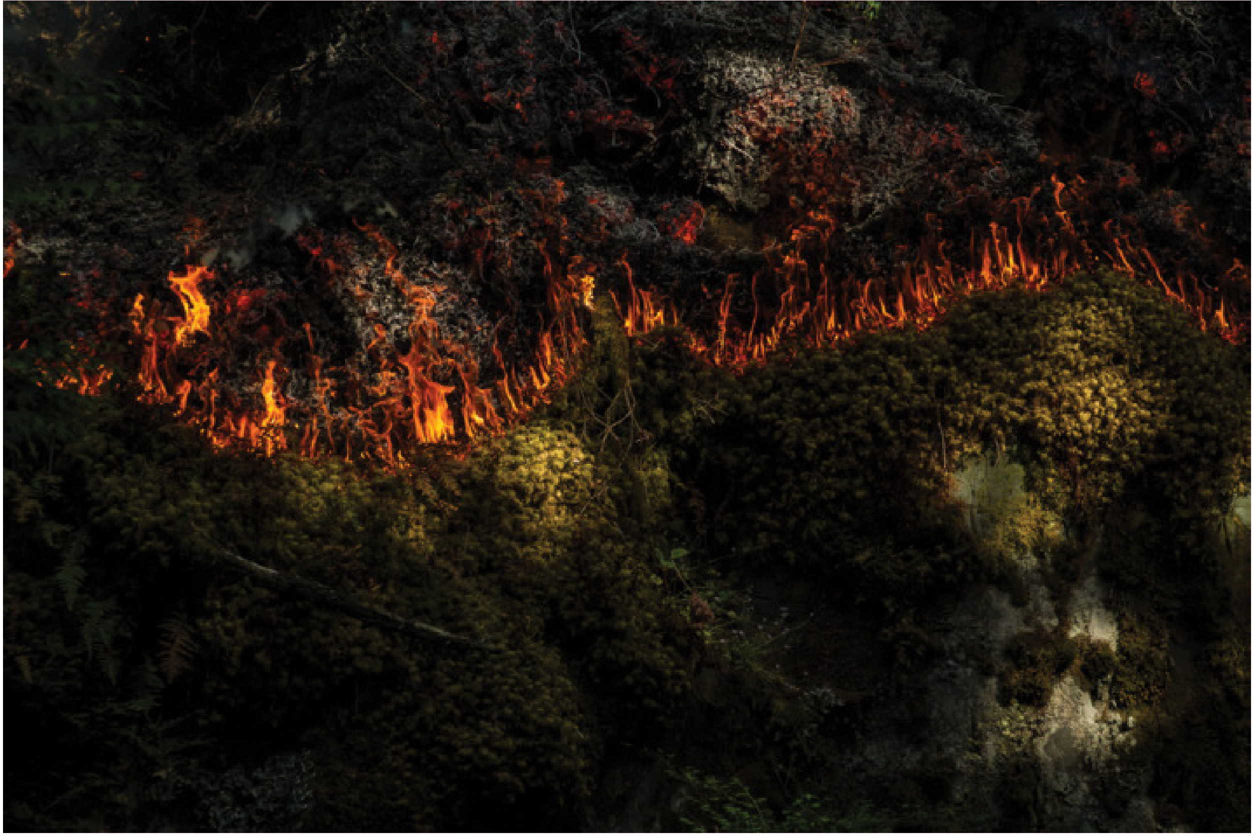


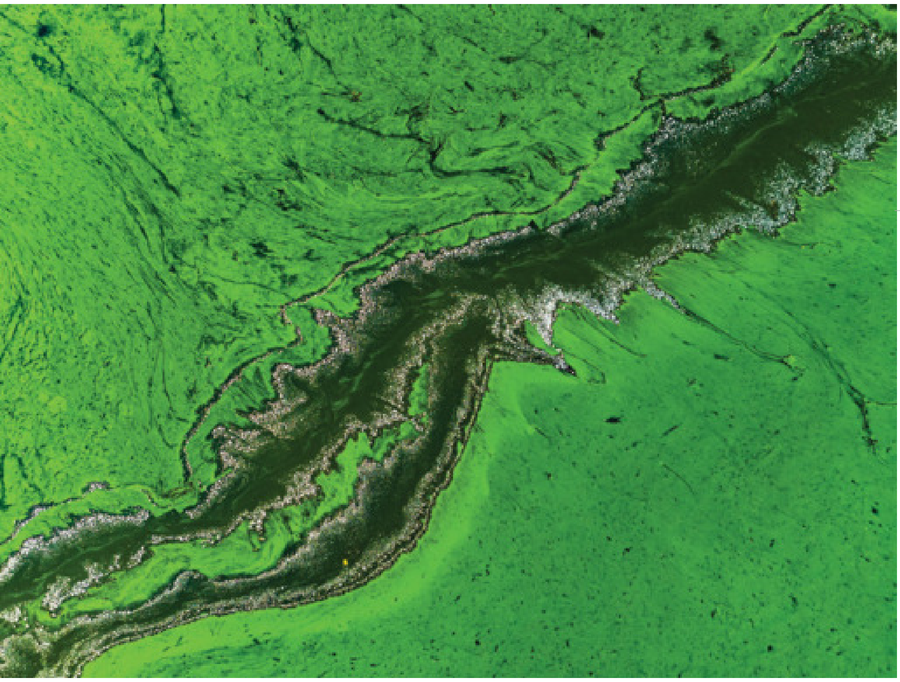
THINGS WITH WINGS | RUNNER-UP

Trevor Lowthers
The photographer's use of low-level flash makes this female wood duck appear to be disco dancing as the sun sets over Dartmouth, N.S.

FLORA & FUNGI | WINNER

Jillian A. Brown
While crews battled a wildfire near Squamish, B.C., that put the community on high alert this past June, the photographer captured the deadly beauty of flames consuming moss on a rock face.



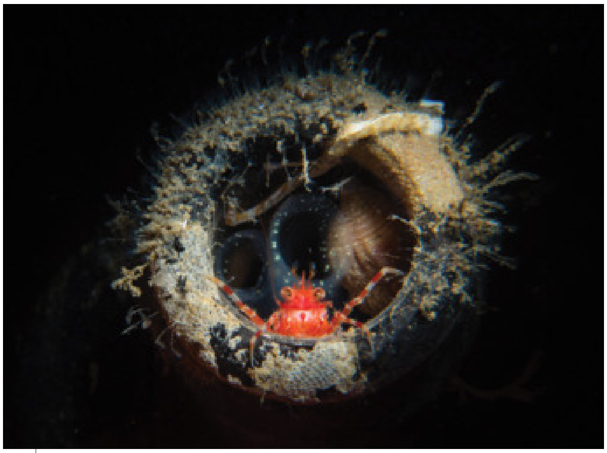


FLORA & FUNGI | RUNNER-UP

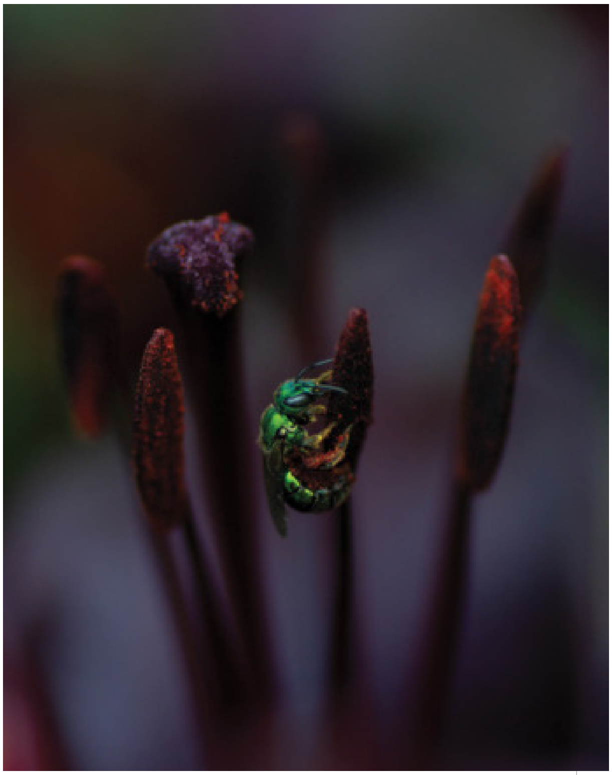
Haolun Tian
From above, an algal bloom in Dog Lake, near Kingston, Ont., looks like a work of abstract art. Previously thought to occur only in heavily polluted areas, overgrowth of algae has become a problem even in remote lakes due to the combined effects of landscape disturbance and climate change.

CANADIAN
Wildlife
PHOTOGRAPHY
OF THE YEAR 2025

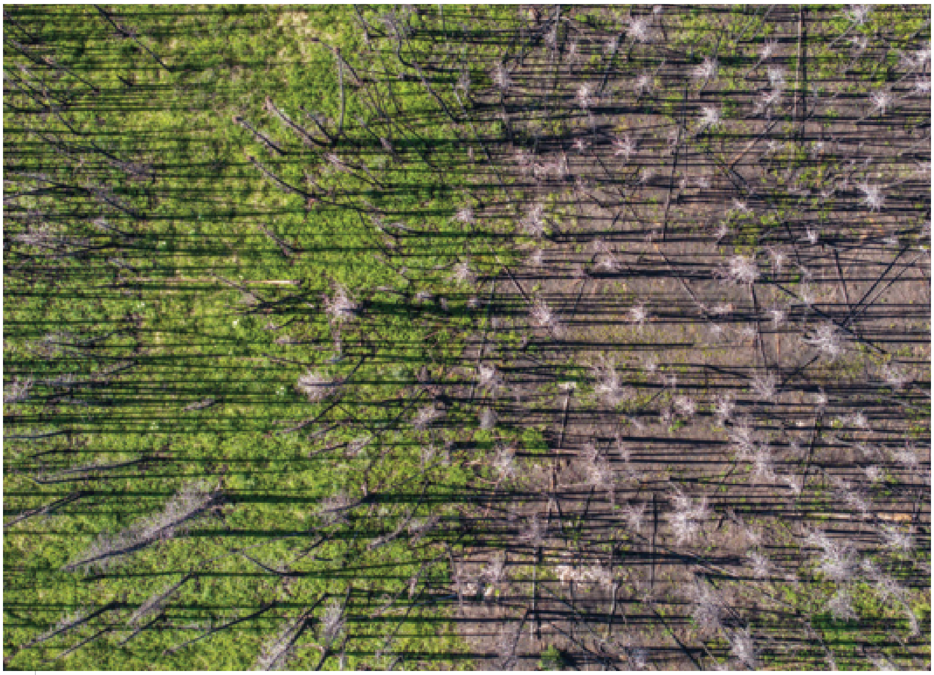
HONOURABLE MENTIONS



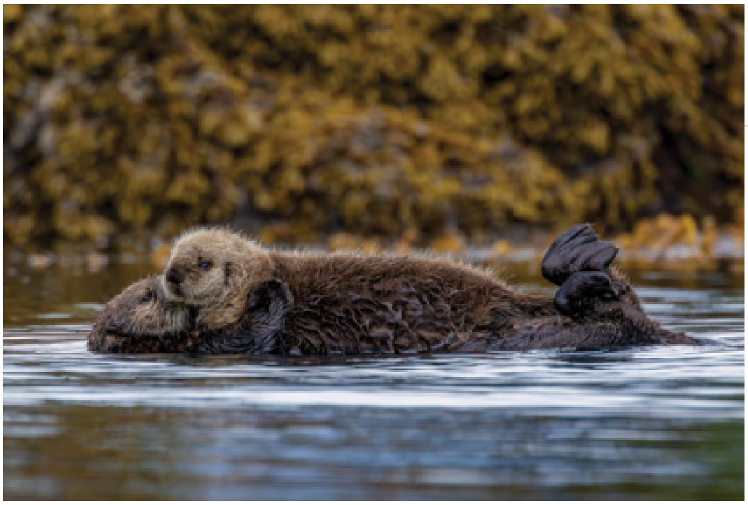
Eli Wolpin
A squat lobster guards the entrance to its beer-bottle den in Whytecliff Park, a protected area and a popular diving spot in West Vancouver, B.C.



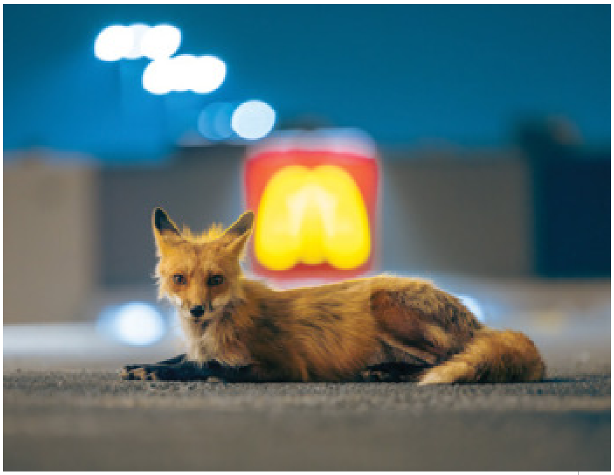
Keri Fisher
A metallic sweat bee collects pollen from the anther of a lily in the photographer's garden in Kemptville, Ont.



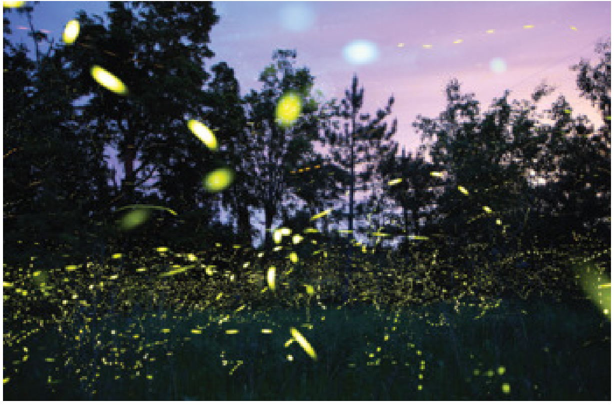
Brandon Broderick
New growth reclaims an area burned by wildfire near Tumbler Ridge, B.C.



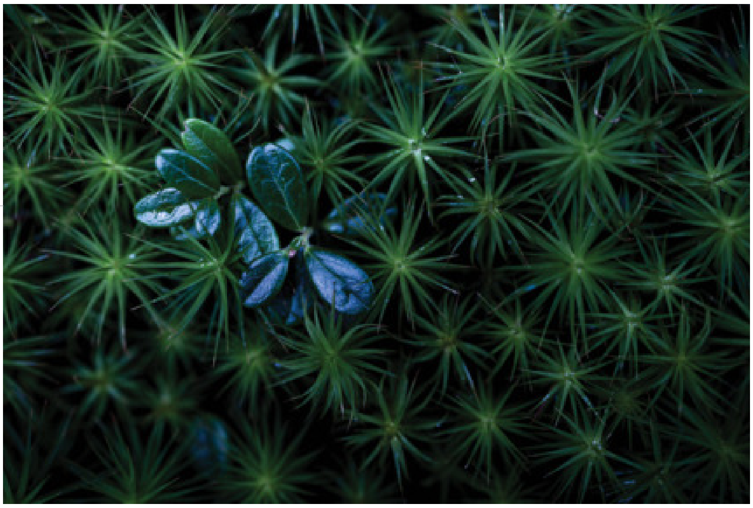
Christy Grinton
A sea otter pup cuddles up to its mother near Port Alice, B.C.



Tom Halligan
A compilation of images captures the activity of hundreds of fireflies as dusk falls on a late spring night near Lakefield, Ont.



Jean-Christophe Lemay
The photographer spotted this red fox hanging around near some fast-food outlets in Rimouski, Que. Though they have adapted to survive in our ever-expanding cities, urban foxes are more likely to be injured or killed by cars.



Amanda Peyton-Noseworthy
The photographer was captivated by the moss coating the forest floor alongside a trail in Birchy Bay, N.L.

The unravelling QUILT

TTHE CAROLINIAN FOREST IS A BIODIVERSITY HOTSPOT IN THE MOST URBANIZED AREA OF CANADA. A DEDICATED FEW ARE FIGHTING TO PROTECT WHAT REMAINS.

BY **MICHELA ROSANO**
PHOTOGRAPHY BY **COLIN BOYD SHAFER**

THE INSECTS SOUND LIKE A ROAR HERE. Countless tiny expressions of life hum across the forests, prairies and wetlands of Point Pelee National Park just before sunset in late May. The birds haven't yet roosted for the night, calling over the cacophony, infinite voices talking all at once.

From my campsite, a 12-metre black walnut tree with a deeply grooved trunk spreads her branches into a lacy canopy. Beyond her, the Carolinian forest looks more like a jungle than a temperate forest. Coke-can-thick Virginia creeper vines drape from chinquapin oaks to hackberries, their five-point foliage arranged like Christmas lights on a string. Understorey plants like mayapple, Solomon's seal and pink sprigs of invasive phlox fill in the forest floor between moss-covered logs and a thick mulch of old wood. It's all moving. Anyone who says a forest is still hasn't stared deeply enough.

Point Pelee is in the southernmost reaches of the Carolinian forest in Canada, a life zone so-called for its resemblance to the Carolinas. Spanning the water-warmed landscape of the Great Lakes in southwestern Ontario from Toronto to Windsor, the Carolinian is a continuation of the eastern deciduous forest in the United States. But its mix of species and climate is all its own. The region encompasses the territories of 10 First Nations of the Wendat, Anishinaabe, Haudenosaunee, Mississauga and Lunaapeew peoples, who've stewarded the land here since time immemorial.

Despite it occupying just a fraction of a per cent of Canada's landmass, this quilt of habitats is one of the most biodiverse places in the country. It's home to more than 70 species of native trees — the most of any other forest region in the country — as well as more than 2,200 plant species, 400 birds and more than half of Canada's species at risk.

But the quilt is unravelling. The Carolinian exists now in isolated pockets in the country's most urbanized region, supporting 25 per cent of Canada's population, the epicentre of its manufacturing industry and Ontario's agricultural centre. Since colonization, the Carolinian zone has lost more than 90 per cent of its original extent. Every year, a bit more is lost. Like we ask of her constantly, Mother Nature bends to suit us. And the wild prairies, ambling wetlands and old-growth forest

that once filled this region are hanging on by a thread.

"How much are we going to lose until we finally admit maybe it was too late yesterday?" asks Jennifer Nantais of Carolinian Canada Coalition, a charitable network working to grow healthy landscapes in the Carolinian zone for decades. "We need to start protecting what we have now and increasing that."

While we can't bring this region back to what it was originally, efforts to conserve and connect tracts of remaining Carolinian have seen recent gains. Amid the clawing for resources and space, there is hope here.

ONCE UPON A TIME, vast tallgrass prairies swayed in the Lake Erie breeze. Karner blue butterflies — now extirpated — fluttered above magenta fireweed, white sprays of culver's root and big bluestem grass. Rivers and streams percolated through the landscape from the lakes, creating giant wetlands and swamp forests deafening with songbirds, like the Carolina parakeet — a now extinct neotropical parrot. Pawpaw trees burst with custardy fruit on the banks of inland streams and rivers, their lima-bean sized seeds scattered in the forest gardens of Indigenous Peoples, such as the Haudenosaunee. Black bears and cougars tromped ancestral trails through tracts of thick, dark woods under the towering trunks of tulip trees.

Few other places in North America have seen change like the lands and waters of southwestern Ontario. Much of its early colonization history was shaped by war. European settlement began in earnest following the end of the Seven Years War in 1763, then United Empire Loyalists carved off pieces of land for themselves after the American Revolutionary War. And much of the theatres of the War of 1812 played out here; the remnants of bloody battle sites still lie scattershot across the landscape.

First Nations were pushed into smaller areas — or out entirely. In the 1920s, the RCMP chased out mem-

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OPPOSITE: Point Pelee National Park is home to many species of trees and plants, such as wild columbine. **THIS PAGE, clockwise FROM TOP:** Carolinian Canada Coalition's Jennifer Nantais surveys the park's marsh, home to midland painted turtles; a delicate wild geranium.

bers of Caldwell First Nation from the newly established national park and burned their homes down. Caldwell First Nations Chief Nikki van Oirschot shares her great uncle's memory of the event from when he was a child, told to her by her mother. "She remembers him telling this story to them and how afraid he was and how frightened he was; how they were literally running because they were getting burned out of their homes, just to get rid of the Indians [from] the park," says the Chief.

Some of the first exports from the Carolinian were trees: red pines from Point Pelee and oaks from the globally significant oak savannahs, a kind of liminal space where oaks trickle into grasslands. Fishing also became big business in Lake Erie, as the water teemed with fish. Lake Erie is still one of the largest freshwater fisheries in the world. And with the longest growing season in the province, the Carolinian zone has seen agriculture for millennia. In 1869, the nascent Canadian government began an emigration campaign encouraging people to farm Ontario. People flooded into southwestern Ontario and began clearing land. By the early part of the 20th century, so much forest had been cleared in Norfolk County that the soil began to blow away.

As populations boomed, the Carolinian shrunk. In about 200 years, 95 per cent of wetlands were drained, more than 80 per cent of forest cover was lost and 99 per cent of tallgrass prairie had evaporated.

FROM THE MARSH at Point Pelee, narrow channels of open water wind through a thick colony of cattails like veins. The park is part of a thin slice along Lake Erie's north shore that boasts the highest concentration of Carolinian species. Eastern musk turtles, swamp rose mallows, least bitterns and others make their homes in this marsh. Across the zone, wetland loss is in a tailspin, with more than 10,000 hectares (100 square kilometres) lost in the last decade.

Carolinian Canada's Jennifer Nantais and I walk down the boardwalk toward open water. Invasive cattails and phragmites (a tall reed grass) have been choking the water here for 70 years, and park staff are in an ongoing battle to eradicate them. Nantais points to a red-winged blackbird clinging to a cattail. "I've never heard [birds] like here," she says. "It's just like driving back in time … the bird chorus, the insect chorus. You can't beat it, and I don't know another place that I can visit in a day where it sounds like this."

Point Pelee juts out of Essex County, an agricultural region in the Carolinian that's lost 97 per cent of its original habitat. The tiny, 15-square-kilometre park is a vital enclave — home to myriad at-risk and endangered species. The park is also a Ramsar Wetland of International Importance. Birds fill the skies, marshes, forests and beaches here each spring and fall. Monarchs, too, flutter into the park's rare oak savannah habitat in early fall to rest on their long migration to Mexico.

"When you think of how old these landscapes are and how new the changes are and their impact on climate and biodiversity, we did so much damage in such a short time," says Nantais. "And we're in trouble: we're at less than 15 per cent natural habitat cover. But we could [mitigate it] if we really got the support."

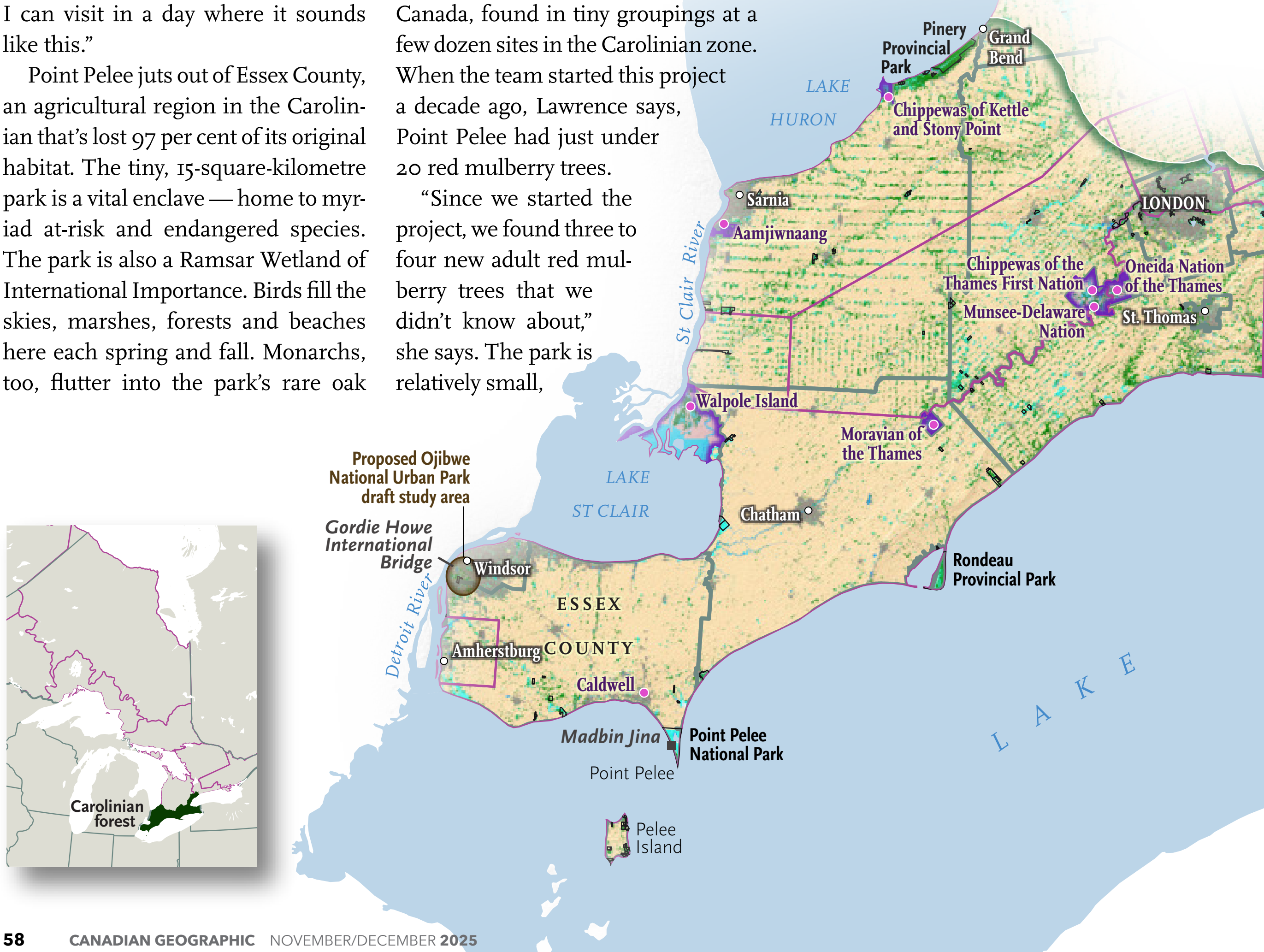
Christina Lawrence, with the park's resource conservation team, has been helping to manage the onslaught of invasive species and restore portions of the park to their natural state. One of those tasks is to restore species-at-risk trees, working to bolster tree populations and improve their genetic diversity.

The rarest of those trees is the red mulberry, a food source for songbirds and small mammals. Hybridization with the invasive white mulberry, disease and habitat loss and fragmentation have meant that there are only about 300 of these trees left in all of Canada, found in tiny groupings at a few dozen sites in the Carolinian zone. When the team started this project a decade ago, Lawrence says, Point Pelee had just under 20 red mulberry trees.

"Since we started the project, we found three to four new adult red mulberry trees that we didn't know about," she says. The park is relatively small, but the biodiversity is dense. Researchers still occasionally find species they didn't know existed here.

To plant more red mulberries in Point Pelee, the team needed seeds. Up on scaffolding, they placed pollen bags over the female flowers of confirmed red mulberry trees as a barrier to the pollen of invasive trees — kind of like a tree condom. Once they gathered red mulberry pollen, they hand-pollinated the female flowers using paint brushes. The trees fruited, juicy red and purple clumps of oblong berries, and seeds were harvested and sent to a local nursery. When plant populations dip that low, seeds become more precious than gold.

Lawrence is eager to open the top of the cage of a tree planted in 2021. "We planted just over 50 red mulberry seedlings, and to this date, 29 have survived. If they grow into reproductive age, we've increased our red mulberry population."


Pinery Provincial Park
Grand Bend
LAKE HURON
Chippewas of Kettle and Stony Point
Sarnia
Aamjiwnaang
St Clair River
LONDON
Chippewas of the Thames First Nation
Oneida Nation of the Thames
Munsee-Delaware Nation
St. Thomas
Walpole Island
Moravian of the Thames
LAKE ST CLAIR
Chatham
Proposed Ojibwe National Urban Park draft study area
Gordie Howe International Bridge
Windsor
Detroit River
ESSEX COUNTY
Amherstburg
Caldwell
Rondeau Provincial Park
Madbin Jina
Point Pelee National Park
Point Pelee
LAKE E
Pelee Island
Carolinian forest

MAP DATA: PROTECTED AREAS: CANADIAN PROTECTED AND CONSERVED AREAS DATABASE, ENVIRONMENT AND CLIMATE CHANGE CANADA, DECEMBER 2024; LAND COVER: ONTARIO LAND COVER VERSION 1.0, ONTARIO MINISTRY OF NATURAL RESOURCES AND FORESTRY, MARCH 25, 2025

I peek in. The tree is about knee high, with papery, deeply grooved leaves.

"I came out here yesterday, and I was looking at them and their little leaves. I was almost getting emotional," smiles Lawrence. "They've come so far; they are like my babies."

We brave poison ivy to get a glimpse at another rare tree: a stand of pawpaws, *Asimina triloba*. At the northern edge of their range here in the Carolinian, the forcing out of Indigenous Peoples — stewards of this tree — from the land and deforestation has meant pawpaws are few and far between. Lawrence tells me these ones may have been planted in the park as part of a forest regeneration project. We step into squishy, waterlogged terrain.

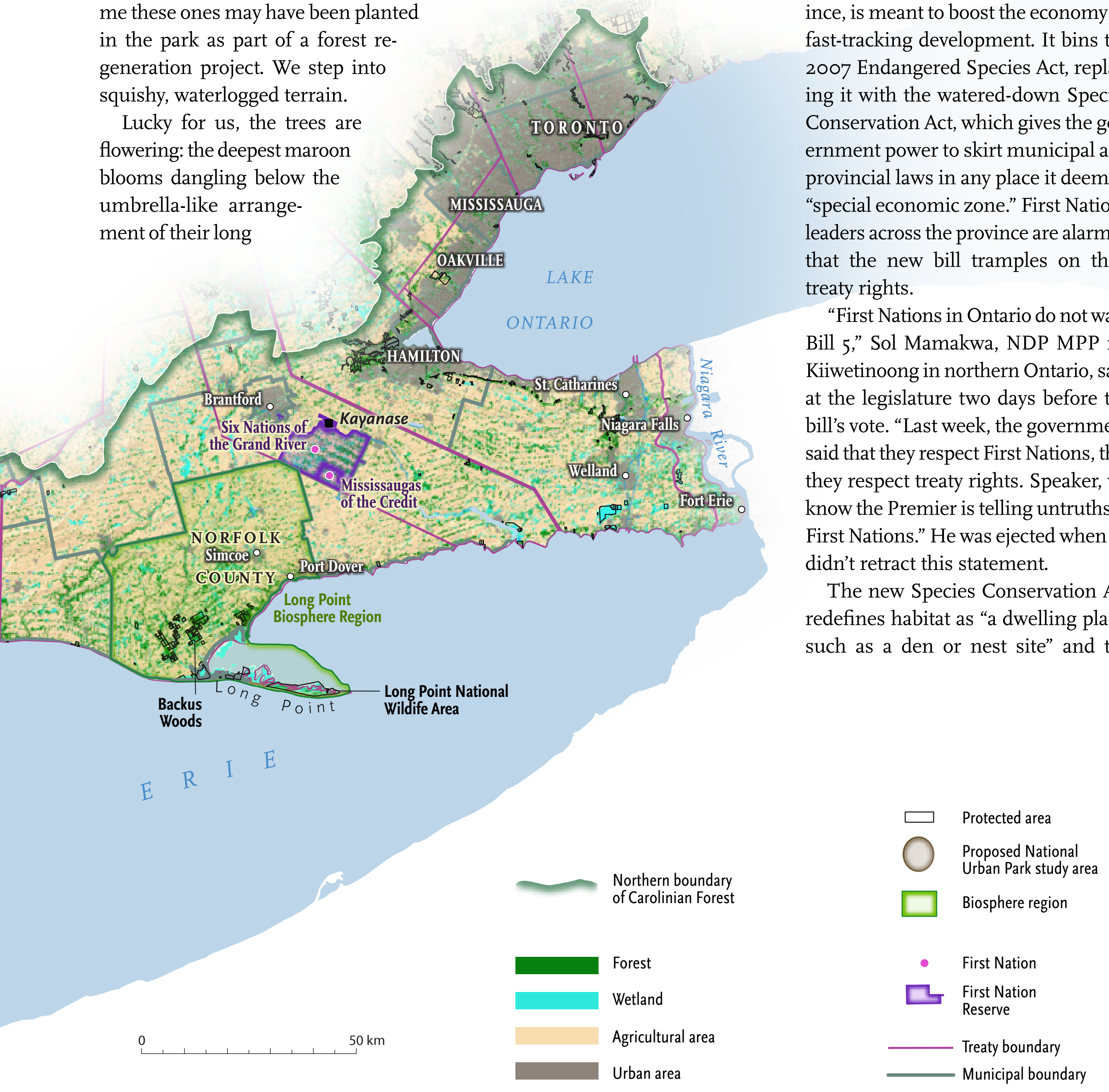
Lucky for us, the trees are flowering: the deepest maroon blooms dangling below the umbrella-like arrangement of their long leaves. Their fruit is the largest native fruit in North America and resembles a small green mango with soft sunshine-yellow flesh and large black seeds — which, some theorize, were spread across the continent by ice-age megafauna, like the North American giant ground sloth. There's nothing else like this tree in Canada. The flowers are said to smell unpleasant, like rotting flesh, to attract flies and beetles, but the one I sniff smells tropical and banana-y, like Juicy Fruit gum.

AT QUEEN'S PARK in downtown Toronto, tulip trees and butternuts stand in manicured lawns with metal plaques nailed to their trunks, like specimens in a museum. In early June, the trees had just finished leafing out when the Ontario government passed Bill 5. Protestors' boos rang through the gallery of the legislature immediately following the bill's passing. "This is our home! Your home, too!" someone yelled. Outside, Indigenous leaders and community members, environmental groups and citizens gathered.

The controversial bill, says the province, is meant to boost the economy by fast-tracking development. It bins the 2007 Endangered Species Act, replacing it with the watered-down Species Conservation Act, which gives the government power to skirt municipal and provincial laws in any place it deems a "special economic zone." First Nations leaders across the province are alarmed that the new bill tramples on their treaty rights.

"First Nations in Ontario do not want Bill 5," Sol Mamakwa, NDP MPP for Kiiwetinoong in northern Ontario, said at the legislature two days before the bill's vote. "Last week, the government said that they respect First Nations, that they respect treaty rights. Speaker, we know the Premier is telling untruths to First Nations." He was ejected when he didn't retract this statement.

The new Species Conservation Act redefines habitat as "a dwelling place, such as a den or nest site" and the


TORONTO
MISSISSAUGA
OAKVILLE
LAKE
ONTARIO
HAMILTON
St. Catharines
Niagara River
Niagara Falls
Welland
Fort Erie
Brantford
Six Nations of the Grand River
Kayanase
Mississaugas of the Credit
NORFOLK COUNTY
Simcoe
Port Dover
Long Point Biosphere Region
Long Point
Long Point National Wildlife Area
Backus Woods
E R I E
0
50 km
Northern boundary of Carolinian Forest
Forest
Wetland
Agricultural area
Urban area
Protected area
Proposed National Urban Park study area
Biosphere region
First Nation
First Nation Reserve
Treaty boundary
Municipal boundary

THIS PAGE: Christina Lawrence checks on a red mulberry sapling planted in the park in 2021, and measures the growth of other trees; **OPPOSITE:** barn swallows feed in open habitats.

area immediately around it for animals, and "the critical root zone" for plants — changes that one activist likened to an "invisible slaughterfest" for species at risk.

The Ontario government "says the purpose behind [the bill] is to speed things up and to make it easier to speed up economic development to address the threats from the south," says Tony Morris of Ontario Nature, referring to the United States' recent tariff hike. "I think, given the pattern of this government, the ultimate goal is really just to remove safeguards."

While Ontario's Bill 5 made waves, Canada passed the federal equivalent, Bill C-5, on June 20. Both the provincial and federal governments have assured meaningful consultation with Indigenous Peoples and environmental considerations, but many are concerned these bills, and others like them, are reversing course on promises to advance reconciliation and stop biodiversity loss.

One of those promises is the Kunming-Montreal Global Biodiversity Framework, a deal brokered by Canada under the UN Convention on Biological Diversity aimed at halting biodiversity loss within signatories' borders, including protecting 30 per cent of their lands and waters by 2030.

About 10.9 per cent of the land in Ontario is considered protected, a number that's been mostly stagnant for almost 30 years, according to the province's own protected areas working group. Of the provinces and territories, Ontario has fallen to eighth place in the country for percentage of protected and conserved area. Similarly, the *2025 State of Ontario Biodiversity Report* shows habitat loss, including fragmentation, has continued to deteriorate over the last five years.

Dan Kraus is a conservation scientist who's worked on issues of biodiversity, endangered species and nature policy for more than 30 years. In 2020, Kraus co-authored a paper in *Biodiversity and Conservation* that identified the most significant and threatened places for biodiversity conservation in southern Canada. The Carolinian zone was top of the list.

"Nationally, we have that goal of protecting 30 per cent of Canada's lands and waters by 2030, which we may achieve … but to actually do that in the Carolinian region I think is very, very unlikely to occur. But what we *can* do is protect the best of what's left," he says. "It took 200 years to shrink down the natural cover to what it is now. It's going to take probably 200 years to build it back up to something that's healthier and more resilient."

TODAY, COTTONWOOD TREES shimmer in the summer breeze at Ojibway Shores, the last undeveloped land on Windsor's waterfront. To the northwest, the Gordie Howe International Bridge crossing the Detroit River is set to open, a six-lane mega border crossing that will become the largest land port of entry to Canada. On either side

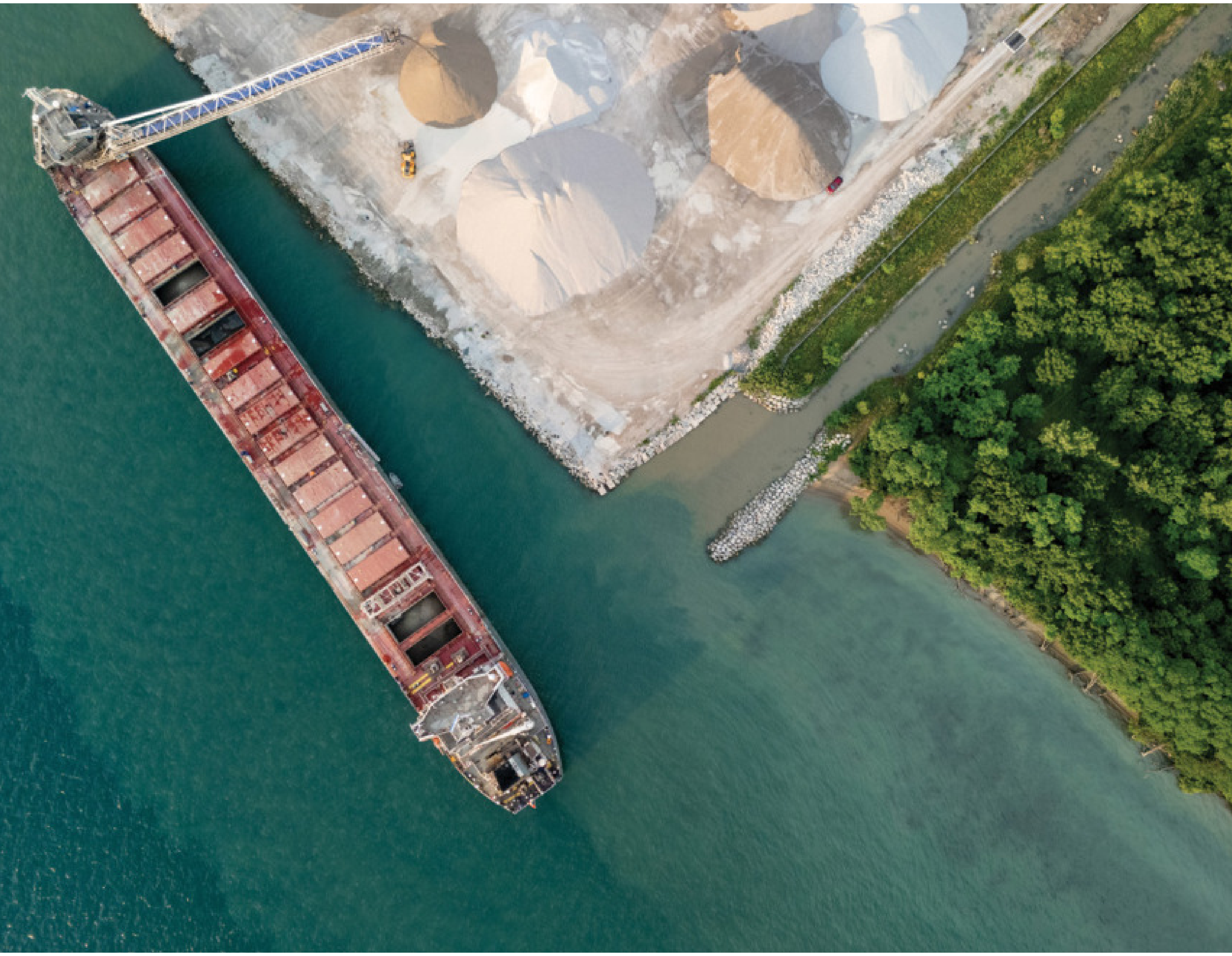
The Redbud Footpath in Point Pelee National Park (LEFT) is strewn with petals after a windy day; at the northern end of its range, a rare pawpaw tree blooms (RIGHT).

of the Carolinian shoreline are cargo ship ports, razed clean of vegetation.

This parcel of land sandwiched by development "feels almost like nature making a stand," says Mike Fisher, president of the Friends of Ojibway Prairie.

The 13.5-hectare plot is set to become part of a proposed national urban park — the second in the country after Toronto's Rouge. As part of its strategy to protect 30 by 30, Canada announced a plan in 2021 to create six new national urban parks by 2025. The proposed Ojibway national urban park would ensure the connection of a 26-square-kilometre tract of mostly tallgrass prairie and black oak savannah, known as the Ojibway Prairie Complex, to the Detroit River. Within the so-called Automotive Hub of Canada, the complex is one of the largest relics of tallgrass prairie in the Carolinian zone, supporting more than 50 provincially at-risk species. In the spring, the Ojibway Prairie Complex was recognized as a key biodiversity area, joining the ranks with Point Pelee and Long Point Biosphere Region as some of the most important places in Canada for species and habitat conservation efforts under standards developed by the International Union for Conservation of Nature.

But the battle to preserve the land at Ojibway Shores was hard-fought. Ownership of the lands switched hands in the last century. In 2013, the Windsor Port Authority planned to clear the



property to store construction materials for the bridge development, causing community uproar. "A good 300 people showed up [to contest it]," says Fisher.

The lands were transferred to Parks Canada in 2023, and the following year the federal budget committed $36.1 million over five years to create and support the proposed Ojibway national urban park. Proponents of the park are anxious to know when that will happen. When it does, the park is set to be co-managed by the Ojibwe, Odawa and Potowatomi nations of the Three Fires Confederacy, including Caldwell First Nation.

"These are First Nation lands. Before Canada was even conceived as a country, before contact, we were roaming these lands. We were caretaking," says Caldwell Chief Nikki van Oirschot. Her administration's work, and before that the work of former chief Mary Duckworth, helped foster Canada's commitment to co-governance with the nation. "This fundamentally means we are going to do this together. We're going to respect one another. We're going to honour and uphold one another's systems of governance," she says.

For van Oirschot, the proposed park represents a move toward better relationships, not only with the land, but with Indigenous Peoples in the Carolinian. "We have a really great relationship with Parks Canada today. That wasn't always the case, of course: with Point Pelee National Park, we have definitely a troubled history with what occurred there," says Chief van Oirschot, referring to the forced removal of her people from the park.

Back at Point Pelee, a teepee rises high above a picnic area on the northwest shore. Beyond it, the Carolinian forest, green and dense and tangled, hums with life. This site was renamed Madbin Jina in 2020 by the

OPPOSITE: A bulk carrier pulls up to a port adjacent to Ojibway Shores, the last undeveloped land on Windsor's waterfront; **THIS PAGE:** Caldwell First Nation Chief Nikki van Oirschot attends the first Pow Wow held on the nation's new reserve this past summer.

OPPOSITE: DAX MELMER; THIS PAGE: LOGAN DEMARS, SOUTHPOINT PRODUCTIONS

late Caldwell knowledge-keeper Janne Irene Peters to signify a new way forward between the nation and the park. That same year, Caldwell First Nation's reserve in Leamington, just outside Point Pelee, was finally established.

A plaque at Madbin Jina explains to visitors the meaning of the Anishinaabemowin expression.

"In the time of our ancestors, if someone was new to the area, lost, cold or hungry, the people would invite them into their lodges to 'sit for a while.' All who crossed their paths in peace were welcomed and cared for as they got their bearings, were fed and rested, all for a while (ajina).

"When you read 'Madbin Jina' know that the Ancestors are welcoming you to come 'sit a while' in peace, and enjoy what Mother Earth has to offer here."

IN BACKUS WOODS, I look out through a green mist of forest to a vernal pool. Appearing as if by magic each spring, these fleeting little pools in a sprawling tract of Carolinian forest provide habitat for amphibians and reptiles, like the threatened Blanding's turtle and Jefferson salamander.

"This right here is one my favourite little vistas," says Kristen Bernard from the Nature Conservancy of Canada. "This will completely dry up by August if we have a regular summer — I don't know what the regular summer is anymore — but right now you're going to have your toads and your frogs and your salamanders. There's quite a few wood ducks that nest and breed here in spots like this in Backus and elsewhere."

Bernard walks me through a section of the woods owned and managed by the Nature Conservancy of Canada. Backus Woods in Norfolk County is one of the largest remaining tracts of older-growth Carolinian forest in the zone and the best example of a closed-canopy forest, a favoured breeding ground for the endangered prothonotary warbler. The woods are also home to some of the oldest trees left in the zone; the growth rings of one 1.35-metre-diameter tulip tree struck down by lightning revealed it was more than 500 years old.

Backus is part of the Long Point Biosphere Region, a 4,046-hectare network of protected areas in Norfolk County beginning at Long Point in Lake Erie. Where once the soil of Norfolk County blew away, conservation efforts mean it now boasts 25 per cent forest cover — the most forested land in the zone, and much of it is protected.

"When the land was settled here, a lot of land was cleared very quickly for agriculture. But the Big Creek ravine system is very steep, steep slopes. It was incompatible for clearing, you just couldn't do it," Bernard says. "So the strategy for NCC and others was to use that natural ravine system as part of that corridor to acquire and build and buffer lands on."

Bernard takes me to another site a few minutes down the road, a "buffer zone" along Highway 24 that the Nature Conservancy of Canada purchased and restored in 2009. Purple spikes of native lupine and myriad other native plants and trees now spread across a burgeoning oak savannah landscape on a former tobacco farm.

"A lot of the [seed from] species that have been planted have been hand collected. When we're doing this habitat restoration work, we come up with a seed list, but it's really dependent … on natural cycles," says Bernard.

Bernard explains the painstaking process of thinning non-native species and planting native ones back on the landscape, including New Jersey tea, a host plant for the extirpated mottled duskywing butterfly. In 2024, researchers reintroduced the species at this site. As we head back to her car, as if on cue, a mottled duskywing lands beside us.

"If [people] care about any of these initiatives, any of the ecosystems, [they] need to get on board and support the scaling up of native seeds.

Ecologist Alyssa Paradis (ABOVE) inspects saplings in Kayanase's greenhouse, while Carole Smith (RIGHT) looks over young white pine trees in Kayanase's seed orchard; a row of seedlings (LEFT) is nurtured in the Kayanase greenhouse.

It's scaling up the available supply, but also supporting the demand, like getting municipalities, getting restoration projects to use appropriate native seed and plants," says Carolinian Canada's Jennifer Nantais.

A 2023 assessment by Natural Resources Canada on the country's seed supply found a "chronic lack" of appropriate seed and nursery stock. So even when they want to plant, project planners struggle to source the diversity, quantity and quality of native plants, seedlings or seeds. Nantais has been spending much of her time recently on Carolinian Canada's southern Ontario seed strategy, aimed at connecting native seed and seedling growers in the region with organizations doing restoration work.

One of the growers engaged in this strategy is Kayanase, an Indigenous-owned native plant nursery and ecological restoration company about an hour's drive north of Backus, in Six Nations of the Grand River.

At the nursery on the banks of the Grand River, administrative team lead Carole Smith and ecologist Alyssa Paradis walk through their 5,000-square-metre native plant greenhouse. At the end of May, it's been picked over by eager gardeners, but there are still a few tables of plants and some rows of sugar maples in pots. Outside on the sprawling property, they're busy building seed stock and developing a series of seed orchards.

Smith and Paradis walk me down to the tree seed orchard: rows and rows of native trees waiting to get large enough to produce viable seed. Started more than five years ago with 1,500 seedlings and a grant from Forest Ontario (now Forest Canada), the orchard includes some species, like white pine, that are just taller than I am. And until these trees produce seed, Kayanase ethically sources seed from the wild within a 75-kilometre radius. Six Nations stewards one of the largest tracts of old-growth Carolinian forest in the region.

As an Indigenous-owned and led business, Kayanase has traditional knowledge at its heart. "Sometimes I think it's not in a particular practice or something that we do, but it's more a translation of ... the way we were raised and some of our cultural values," Smith says. "Especially when it comes to wanting to restore Mother Earth, promoting stewardship and sustainability practices. It's just bringing forward that need to preserve things for the next generation."

Seeds are hope. And from one tiny seed, tossed around in the water, frozen, burnt, waiting in the soil, springs life in infinite shapes and colours. A columbine's red lantern-shaped flower dangling high above a doily of green foliage; a pawpaw's umbrella-like canopy protecting a palm-sized fruit. Food for myriad species, and home — for us, too.

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p.76

Walk of HOPE

TREKKING JAPAN'S RESTORED MICHINOKU COASTAL TRAIL

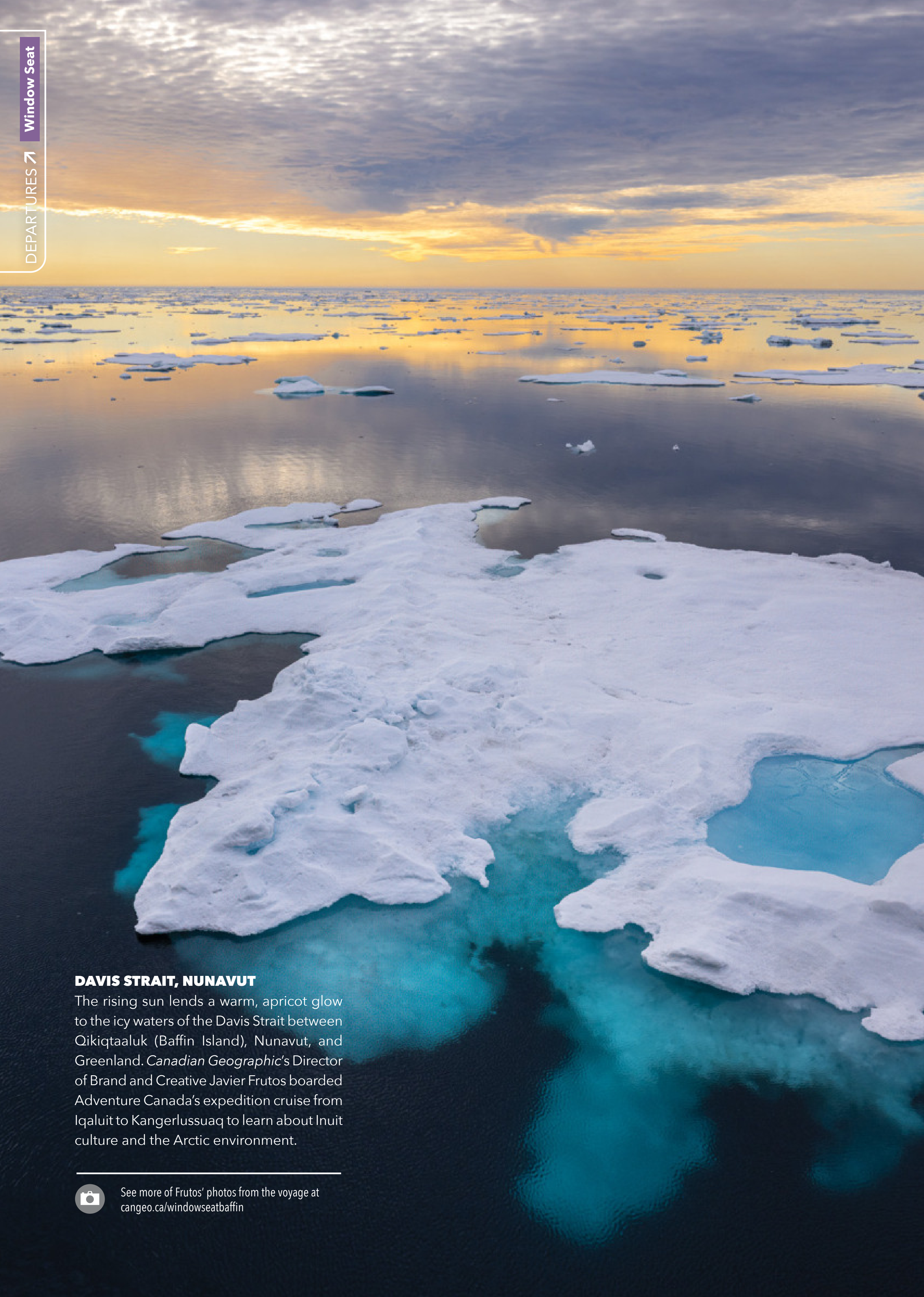
By Madigan Cotterill

MADIGAN COTTERILL/CAN GEO

p. 71 **ITINERARY** WINTER IN SASKATOON

p. 73 **DINO ROAD TRIP** FOSSIL HUNTING IN ALBERTA'S BADLANDS

p. 84 **LAND OF WATER** CREE ADVENTURE IN NIBIISCHII PARK



DAVIS STRAIT, NUNAVUT

The rising sun lends a warm, apricot glow to the icy waters of the Davis Strait between Qikiqtaaluk (Baffin Island), Nunavut, and Greenland. *Canadian Geographic*'s Director of Brand and Creative Javier Frutos boarded Adventure Canada's expedition cruise from Iqaluit to Kangerlussuaq to learn about Inuit culture and the Arctic environment.

See more of Frutos' photos from the voyage at cangeo.ca/windowseatbaffin

SASKATOON IN WINTER

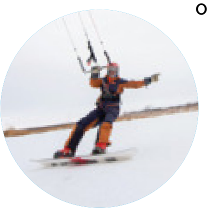
A ribbon of fresh snow unspools behind you as you glide your kicksled along the Meewasin Trail. Light snowflakes cascade onto riverbank thickets of wolf willow. The aroma of coffee beckons while skaters loop circles on a nearby rink. Ducking into a cosy café, you sip heat back into your body and embrace the beauty of a prairie winter. Welcome to winter in Saskatoon.

– Jenn Smith Nelson

DAY 1 PLAY, PRAIRIE-STYLE | 9 a.m. Let your inner child loose at Optimist Hill's community-run slopes, with exhilarating snow tubing, sledding, skiing and a terrain park for jumps and tricks. Or head to a quieter neighbourhood park like Arbor Creek, one of 28 city tobogganing spots.

SWEET SUSTENANCE | 1 p.m. While away an hour at Botté Chai Bar with a cup of Persian tea infused with cardamom and rose petals, and indulge your sweet tooth with their baklava or saffron rice pudding.

RIVERVIEW SKATE | 7 p.m. Cap off your evening in Saskatoon gliding under the enchanting glow of the "castle on the river" at the Cameco Meewasin skating rink in front of the iconic Bessborough hotel.



DAY 2 CHOOSE YOUR ADVENTURE | 9 a.m. Steps from your hotel, stroll or rent kicksleds from Escape Sports to explore the Meewasin Trail, which winds under bridges and through scenic parks on both sides of the river. Or try skin-based skis, a snowshoe-ski hybrid, and carve tracks at Cranberry Flats Conservation Area. Fancy something wilder? Book a private snow-kiting or winging lesson to experience the thrill of flying across a frozen lake.

WHERE TO STAY

Book a river-view room at Park Town Hotel, steps from the Meewasin Trail and downtown dining. On frigid mornings, the steam rising from the fast-flowing South Saskatchewan River is a breathtaking sight.

MID-AFTERNOON MERAKI | 1 p.m. The philosophy behind Filosophi, a family-run spot serving up Mediterranean classics with a west-coast flare, is *meraki*, a Greek word expressing the love and enjoyment one has for what they do. Taste it for yourself by indulging in flaming saganaki, a Greek classic made with creamy, salty kefalograviera cheese.

FROM ASIA WITH LOVE | 6 p.m. At Sulu, owner Andy Yuen transports you straight to Asia. Beneath the warm red glow of lanterns, share mushroom bao buns, hand-pinched dumplings or tom yum shrimp sushi paired with a lucky-rabbit cocktail or the fruity, crisp red lantern mocktail.

DAY 3 RELAX AND RESET | 10 a.m. Drive 30 minutes south to Blackstrap Provincial Park to embrace presence and connection during a guided trek along forest trails and frozen lakeshore. Then, warm up in a secluded wooden barrel sauna.

PRAIRIE WHISKY UNDER THE STARS | 6 p.m. Finish off your Saskatoon sojourn outside city limits at Black Fox Farm & Distillery. After a quick whisky-making primer, crunch over the moonlit snow to a field where rows of oak barrels breathe and age under the watchful eye of Mother Nature. Then, return indoors to partake in a tasting of whisky drawn straight from the air-chilled source. ❄

CLOCKWISE FROM TOP: SIKPICS/DISCOVER SASKATOON; COURTESY SULU; COURTESY ESCAPE SPORTS; COURTESY BOTTÉ PERSIAN CAFE

CRUSTACEAN VACATION

SOUTH SHORE, NOVA SCOTIA

Only in Nova Scotia can a six-pound lobster named Lucy command an early morning audience of nearly 100 shivering spectators in February. As we gather at first light just off the causeway on Cape Sable Island, the province's southernmost point, a mysterious Styrofoam cooler hints that something unusual is about to unfold.

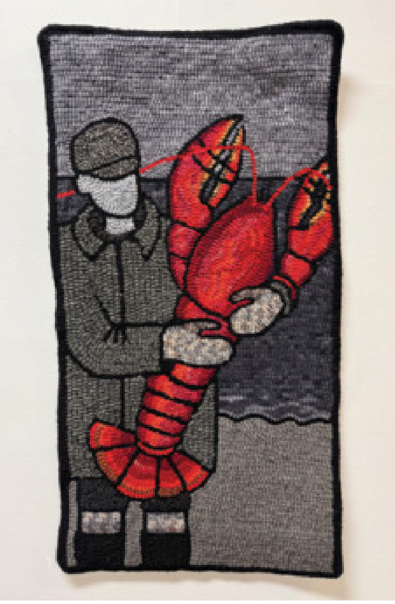
The Lobster Crawl Festival was cooked up by the communities along Nova Scotia's South Shore in 2018 as an antidote to winter's chill. The month-long party serves up everything from competitive lobster roll showdowns to lobster-infused art. Even Groundhog Day gets a maritime makeover courtesy of Lucy, the region's shell-wearing weather prophet. After Lucy, draped regally in Nova Scotia tartan, makes her prediction (six more weeks of winter — and she hasn't been wrong yet), the Lobster Crawl Festival kicks into high gear. Here are four ways to savour the ultimate crustacean vacation.

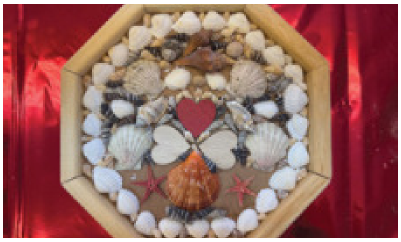
FROM TRAP TO TABLE

If you're curious about how lobsters make the journey from the ocean floor to our plates, head to Fisher Direct, a lobster processing plant in Shag Harbour. Each of its eight tanks can house up to 20,000 lobsters, just visiting for a day or two before they're sorted, graded and exported live to restaurants and grocery stores around the world.

At Capt. Kat's Lobster Shack in nearby Barrington, you can view the "spa" (read: tank) from which Lucy hails. The spot also snagged the coveted title of best lobster roll in 2025. Don't miss signature dishes like lobster fondue and creamed lobster.

Note: Cooking lobster at home? Numb it in the freezer until sluggish, then make a swift cut behind the eyes with a sharp knife. This minimizes suffering and aligns with best animal welfare practices, according to Alain Bossé, a.k.a. the Kilted Chef.





Clockwise from TOP LEFT: Lucy the lobster predicts spring's arrival; a lobster-themed rug; a sailors' valentine at the Fisheries Museum of the Atlantic; a festive feast.

JODY ROBBINS

CRUSTACEAN CRAFTS

With four museums dedicated to preserving the history of the South Shore region, the Barrington Museum Complex is your go-to for lobster-themed souvenirs and crafting sessions. I try my hand at felting — pushing and pulling wool fleece fibres through canvas with a barbed needle to create a design. You, too, may find the stabbing motion so cathartic that you leave with a starter kit to keep crafting at home.

For more artistic inspiration, Liverpool's Queens County Museum showcases a special exhibit of lobster art from around the South Shore.

SAILORS' VALENTINES

In the late 18th and 19th centuries, Nova Scotia sailors trading salt fish for molasses in Barbados would bring back "sailors' valentines" for their loved ones. These treasure boxes studded with hundreds of seashells often included messages or photographs. Create a simplified version at the Fisheries Museum of the Atlantic. While shells are provided, you can bring your own or even incorporate old jewellery into your masterpiece.

LOBSTER ROLL-OFF

The crown jewel of the festival is the lobster roll-off competition, a blind tasting featuring a dozen restaurants from around the South Shore. Sample the previous year's winning roll, watch the judges' deliberations and learn the art of lobster preparation from the renowned Kilted Chef.

Afterwards, mix and mingle with restaurant operators to learn first-hand the secrets to their lobster rolls. Just realize that the conversation will inevitably circle back to butter versus mayonnaise, the eternal lobster roll debate. ❂

—Jody Robbins

Lobster season in this region runs from the last week in November to the last week in May. Learn more at lobstercrawl.ca.

THE GREAT DINOSAUR ROAD TRIP

LIKE MANY parents, I became something of a dinosaur expert as my children became increasingly dino-obsessed. As they progressed from their first “Rawr” to bombarding me with paleontology facts, I’ve followed along. This summer, I piled my three boys into a CanaDream RV to tour Alberta, searching for *Tyrannosaurus rex* and other giants of the Cretaceous period. For one brilliant week, we drove more than 2,200 kilometres around the province, dug for fossils, helped clean a yet-unnamed dinosaur and visited otherworldly landscapes.

— Illustration by Mary Sanche, with story by Lola Augustine Brown

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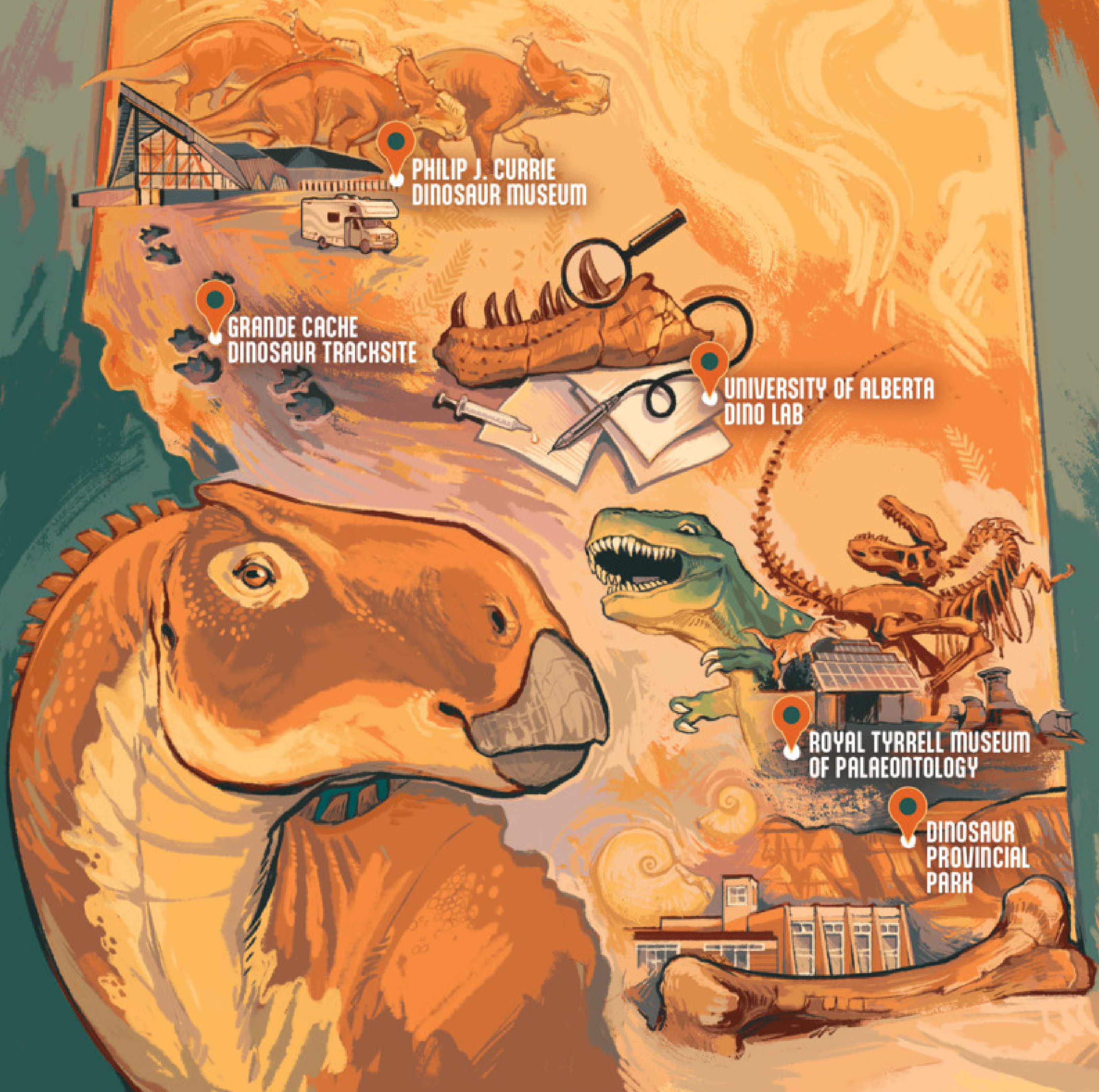
Read the full story at cangeo.ca/dinoroadtrip


PHILIP J. CURRIE DINOSAUR MUSEUM
GRANDE CACHE DINOSAUR TRACKSITE
UNIVERSITY OF ALBERTA DINO LAB
ROYAL TYRRELL MUSEUM OF PALAEONTOLOGY
DINOSAUR PROVINCIAL PARK

DIGITAL

For even more travel stories, reviews, guides and videos visit **cangeo.ca/travel**

SQUAMISH ELEVATED

From rugged cliffs to rushing waterfalls, digital and travel editor Madigan Cotterill gets acquainted with Squamish's dramatic landscapes via the town's newest attraction: the Squamish Canyon boardwalk. Aiming to create a safe and accessible space to connect with the outdoors, the boardwalk also safeguards the natural beauty of Squamish's forests.
cangeo.ca/squamishcanyon

VIKING TRAIL

Aboard the *Ocean Endeavour*, best-selling author Bill Arnott embarks on a two-week expedition from Iceland through Greenland to the Arctic Circle. Amid towering fiords, icebergs, wildlife and Inuit communities, he explores remote landscapes, samples local cuisine and reflects on the beauty, culture and wild rhythms of the North.
cangeo.ca/wakeofvikings

PACIFIC PLAYGROUND

Rugged, authentic and full of surprises, Campbell River is Vancouver Island's gateway to adventure. From hiking through old-growth forests and spotting orcas along Discovery Passage to indulging in affordable luxury at a boutique resort, this three-day escape blends outdoor thrills with coastal charm.
cangeo.ca/campbellriver

IRELAND, WITH MOM

Follow travel journalist Robin Esrock as he experiences Ireland through his mother's eyes. On this mother-son journey, they discover Ireland's storybook landscapes, local traditions and unforgettable experiences – from wandering forested hills and coastal cliffs to tasting whiskey and meeting welcoming locals along the way.
cangeo.ca/emeraldisle

CLOCKWISE FROM TOP: MADIGAN COTTERILL/CAN GEO; ROBIN ESROCK; DESTINATION CAMPBELL RIVER; BILL ARNOTT

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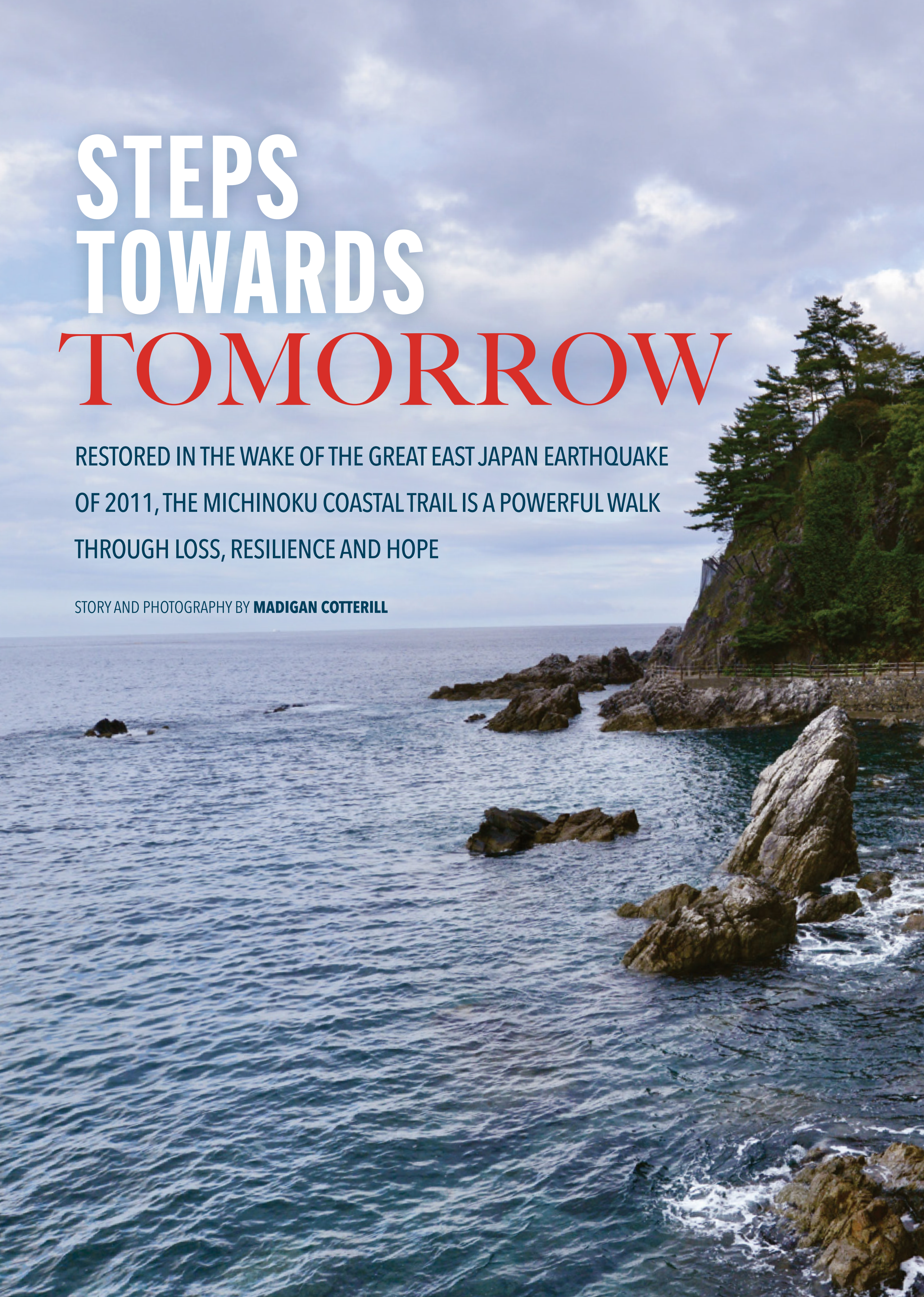


STEPS TOWARDS TOMORROW

RESTORED IN THE WAKE OF THE GREAT EAST JAPAN EARTHQUAKE OF 2011, THE MICHINOKU COASTAL TRAIL IS A POWERFUL WALK THROUGH LOSS, RESILIENCE AND HOPE

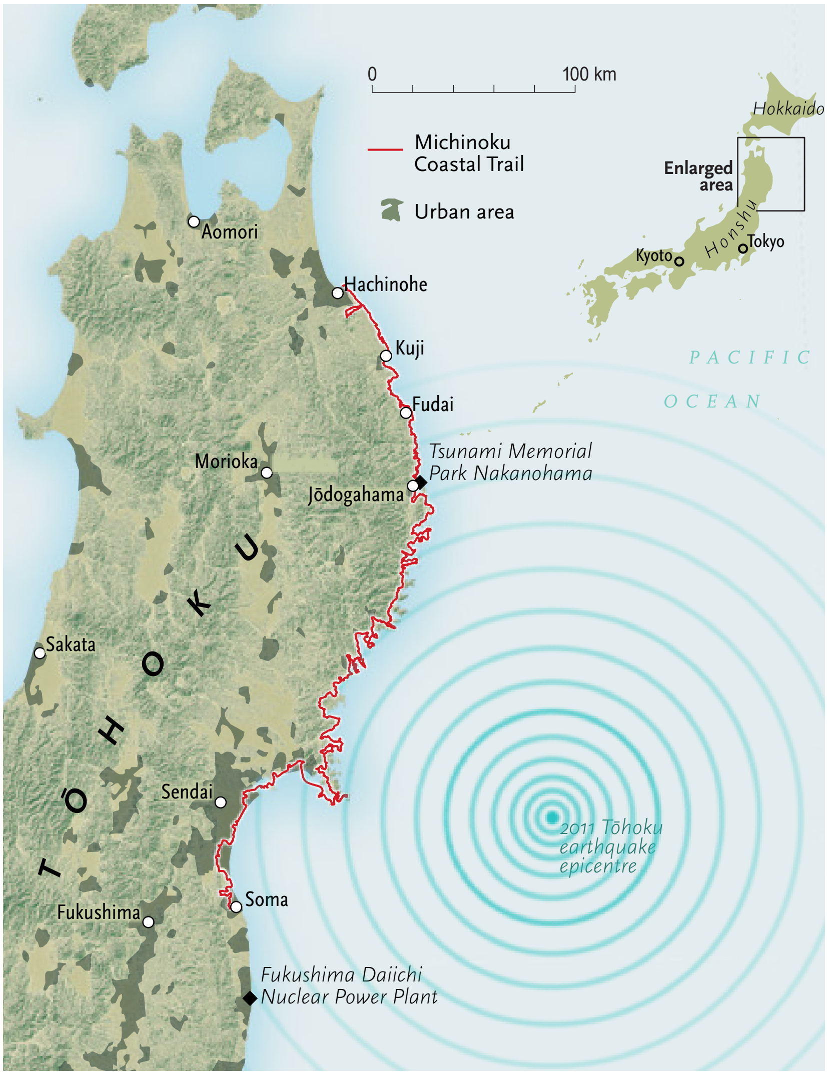
STORY AND PHOTOGRAPHY BY **MADIGAN COTTERILL**

MASAKI MAEKAWA was working in his office in Tokyo when the shaking started. At 2:46 p.m. JST on March 11, 2011, a fault line deep below the floor of the western Pacific Ocean ruptured, triggering the strongest earthquake ever recorded in Japan. For six minutes, the Earth heaved and rumbled. "There was a very big tremor," I read from Maekawa's phone, which we are using as a translator. "I never thought that such a big tsunami would come."

I'm sitting with Maekawa at a table a few steps away from the railway station in Fudai, a small village in the north of Honshu, the largest of the islands of Japan, where he now works for the tourism office. Around us, the smells of spiced foods and various meats waft through the air as vendors prepare for a festival scheduled to take place later that day. Maekawa buys me a skewer of dengaku, a warm and garlicky slab of miso-glazed tofu cooked over a fire, which I devour after a long day of hiking. The sun is shining, and cheerful music is playing from speakers around the town square. The joyful atmosphere is at odds with our sombre conversation. Maekawa clears his throat and speaks into his phone. "The shaking gave me a bad feeling that something was about to happen," his next message reads.

The sudden upward and lateral thrust of the seabed displaced the water above, generating powerful tsunami waves that slammed into the northeastern coast of Honshu 30 minutes after the earthquake. In some places, the surge reached 40 metres in height, overtopping seawalls and floodgates, flattening homes and, in Fukushima prefecture, triggering a triple meltdown at the Fukushima Daiichi nuclear power plant.

Maekawa rushed home to find his wife and child safe, then drove to his parents' house in Fudai, eight hours north of Tokyo by car. To his immense relief, the village was virtually unscathed thanks to its enormous floodgate. The public had been skeptical


0
100 km
Michinoku Coastal Trail
Urban area
Hokkaido
Enlarged area
Honshu
Kyoto
Tokyo
PACIFIC OCEAN
Aomori
Hachinohe
Kuji
Fudai
Tsunami Memorial Park Nakanohama
Morioka
Jōdogahama
TŌHOKU
Sakata
Sendai
2011 Tōhoku earthquake epicentre
Soma
Fukushima
Fukushima Daiichi Nuclear Power Plant

MAP: CHRIS BRACKLEY; MAP DATA: MICHINOKU COASTAL TRAIL: MICHINOKU TRAIL CLUB, 2025

PREVIOUS SPREAD: A narrow paved trail hugs the cliffs. **THIS SPREAD, clockwise from TOP LEFT:** Jōdogahama Beach; Kabushima Shrine at the start of the Michinoku Coastal Trail; the "miracle floodgate"; Masai Maekawa.

when longtime Fudai mayor Wamura Kōtoku championed the construction of the floodgate, which was completed in 1984 at a cost of 3.56 billion yen (just under C$35 million), but after the events of March 2011, it became known as the "miracle floodgate."

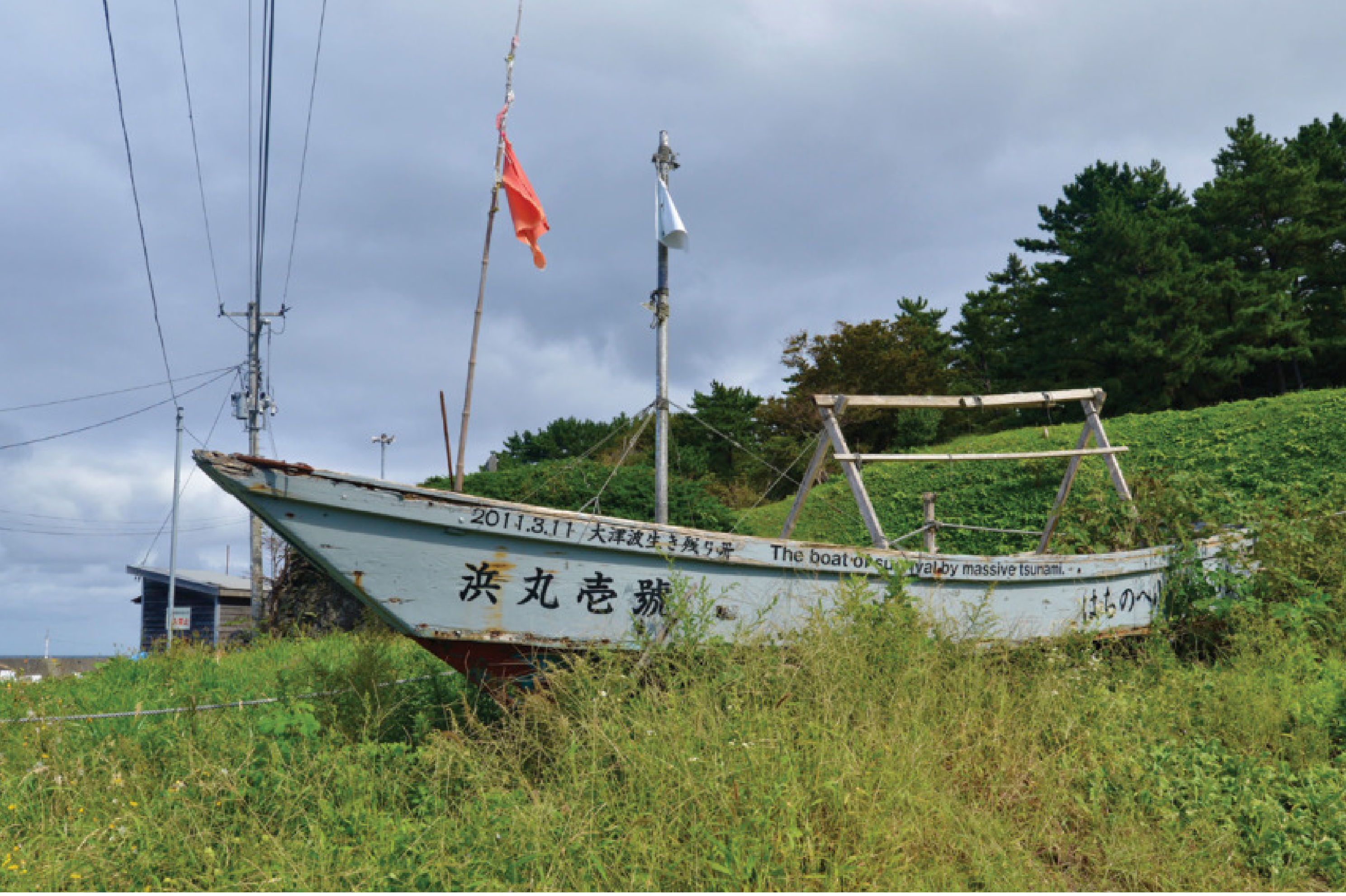
"The floodgate saved our home," Maekawa writes. "And the village."

When I finally see the floodgate for myself, I gasp. Towering 15 metres above the road, the massive gate looks like something out of *Jurassic Park*: an imposing concrete structure rising out of the ground, framed by thick, wild foliage, with seabirds circling overhead. There's something both reassuring and unnerving about it — a monument to resilience but also a reminder of everything that was lost on that terrible day. Immense boulders are scattered across the landscape between the gate and the sea, carried there by the force of the tsunami. I squint towards the edge of the Pacific and try to imagine a wave powerful enough to reach up to 10 kilometres inland, as it did in nearby cities such as Sendai.

Madigan Cotterill (@madiganjane) is Canadian Geographic*'s digital and travel editor.*

Fudai is my mid-way checkpoint on the Michinoku Coastal Trail, a 1,025-kilometre-long footpath through Tōhoku, the region hardest-hit by the tsunami. Officially established in 2019 by Japan's Ministry of the Environment with the support of local governments and NGOs, the goal of the trail is to support Tōhoku's ongoing recovery from the disaster by reconnecting communities and encouraging tourism.

I'm hiking from Hachinohe to Jōdogahama Beach, winding my way south along the coast through cedar forests, across rugged cliffs, past terraced farmlands and peaceful fishing villages. Sometimes I find myself deep in a bamboo forest, walking on packed dirt, then a couple of hours later, I'm barefoot on a sandy beach, feeling the cool, briny air against my skin. Along the route, evidence of the tsunami's destruction is still present, if you know


2011.3.11 大津波生き残り舟
The boat of survival by massive tsunami.
浜丸壱號
はちのへ

what to look for: foundations of buildings swallowed by the sea, tilted utility poles and rusted debris half-buried in the undergrowth. Silent reminders that the route is not just a beautiful hike; it's a journey through a living landscape of memory, hope and quiet strength.

"OISHII!" I say to Hidenobu Nakamura. Tasty. I've been in his small but fully stocked pastry shop on Fudai's main street for all of five minutes before he offers me a red bean taiyaki, a sweet cake shaped like a fish. The paste oozes out as I take a bite. Nakamura laughs and hands me another, this time filled with custard. He's eager to chat, but "oishii" is one of the few Japanese words I know. "Sumimasen," I say, apologizing. "I don't speak Japanese."

"Do you like it?" he asks in English.

"I do!" I reply.

Behind Nakamura, shelves upon shelves are filled with a wide variety of fresh, homemade pastries and packaged cakes: savoury pies with herbs, colourful cookies and different flavours of Japanese cheesecake. He tells me that this store, Shimokawara Shōten, has been run by his family for three generations. "I like when tourists come to visit," he says. "Our hometown has much to offer, and it makes me happy to see others happy."

Continuing down the street, I pause to take in the heavenly scent of a savoury curry wafting from another storefront and follow my nose to the doors of Kamikanda Butcher, where I am instantly greeted by the owner, Keiji Kamikanda. "Kon'nichiwa!" he says excitedly and asks me where I'm from.

I am clearly a tourist with my sweaty ponytail, muddy pants and heavy backpack filled to the brim with rain gear and camera equipment. I explain I am from Canada, hiking the Michinoku Coastal Trail.

Kamikanda disappears suddenly into the back of his shop and quickly returns with a small paper bag. "Japanese curry bun," he says, handing me the snack — still warm. "Try!" he commands. Despite already being stuffed with pastries, I don't hesitate to take a big bite. When I offer my compliments, Kamikanda laughs, runs to the back again and presses another bun into my hands. "For your travels," he says.

I've experienced this same gracious hospitality at every stop along the trail. Despite the language barrier, locals have gone out of their way to make me feel welcome, offering directions, heartfelt conversation — and so much food. And yet, I know the region still struggles to attract the visitors who once bolstered the local economy.

フリーマーケット
10/14
なべ焼うどん
いわて消防団 応援の店
PayPay

Clockwise FROM TOP LEFT: A boat that survived the 2011 tsunami; Keiji Kamikanda in his shop; Hidenobu Nakamura makes taiyaki.

Before the tsunami, tourism in Tōhoku was modest but meaningful, largely consisting of domestic travellers. Seasonal festivals and the picturesque scenery were the biggest draws, alongside the small inns dotting the rugged coastline. After the tsunami, the region became synonymous with devastation, and the number of visitors plummeted. The Japanese government launched an ambitious 10-year recovery plan that focused on restoring communities and rebuilding infrastructure. By 2021, many roads were repaired and new homes and seawalls constructed. In Tōhoku, however, recovery is more than physical.

Psychological scars were left behind as towns grappled with the loss of so many people (official figures put the death toll at nearly 16,000, with another 2,500 missing and presumed dead) and the destabilization of the regional economy. To foster a renewed sense of purpose for the hardest-hit communities, the Michinoku Coastal Trail was envisioned as not just a recreational route but a living monument.

The route is still relatively new, but officials estimate a few thousand hikers take on the trek annually, with interest growing, especially amongst domestic walkers. By day, I walk anywhere from six to 25 kilometres, following a suggested itinerary and detailed map provided by Oku Japan, a tour company specializing in self-guided hikes on historic trails throughout the country. Each day, I get up early and review my route before breakfast, noting points of interest like scenic lookouts and potential rest stops. To cater to different fitness levels, Oku Japan suggests both easy and hard routes for the day, often with a difference of more than 10 kilometres or a few hours between the two options.

On day five, as I make my way from the Kurosaki viewpoint to Cape Kitayamazaki, I select the longer walk, which adds two hours and a significant elevation gain to the trek. The view of Cape Kitayamazaki, rising like a fortress from the Pacific, is worth it.

Most days, I am alone on the trail. By night, I stay in a mix of Japanese inns, guesthouses or small hotels close to the trail, thoughtfully arranged in advance by Oku Japan.

In Fudai, I stay in a small, traditional-style guesthouse a couple of minutes walking distance outside town. In the entryway, my host, Chiyomi Michiai, shows me gifts left behind by past guests, including a mini Canadian flag and a boomerang. That night, I share the space with a father and daughter from Australia, also hiking with Oku Japan. We sit on the floor in borrowed kimonos, exchanging stories while enjoying a homemade feast: whole squid, scallops, tofu, pickled vegetables and the freshest sashimi I've ever tasted.

Midway through our meal, Michiai joins us on the floor. The four of us, each from vastly different parts of the world,

A rock formation (OPPOSITE) near Kuji City; an abandoned boat below the Kabushima Shrine (TOP); Fudai (BOTTOM) is known for its colourful streets.

share stories of our individual journeys and thoughts on the trail. Carly-Marie and her father, Bruce, agree with me that the walk that day was particularly challenging. “There were just so many stairs!” says Carly-Marie. “Once you thought you were done,” Bruce adds, “there were more!”

Michiai tells us about the many people she has welcomed into her guesthouse and says the Michinoku Coastal Trail has been helping to bring more visitors to Fudai.

“Did you see the miracle gate?” she asks. The three of us nod as the lighthearted conversation turns serious. Michiai tells us that because of the floodgate, her guesthouse wasn’t harmed. She doesn’t want to think about what would have happened had it not been there. “It is a miracle gate,” she says, pausing for a few seconds as the room goes quiet. Then, she looks up with a sparkle in her eye.

“Ice candy?” she offers. Before we can answer, Michiai runs into the kitchen and brings out four lime green popsicles.

As I prepare to leave the next morning, Michiai presses a bento box into my hands. Inside, I find a small omelette, crisp vegetables, and tuna onigiri. “Please do come back,” she says, pulling me into a hug like we’ve known each other for years. As I walk through the quiet morning streets, I wipe away unexpected tears.

MY DESTINATION ON THIS, the penultimate day of my trek, is Jōdogahama Beach in Miyako, widely considered to be one of the most beautiful beaches in Japan thanks to its jagged rock formations and polished pebbles. But first, I pass through the Tsunami Memorial Park Nakanohama. Once a popular campground, it’s now an open-air monument honouring the victims of the 2011 disaster. Plaques show before-and-after photos of crumpled buildings and flooded landscapes. “Evacuation from a tsunami is a race against time,” reads a sign beside a series of surveillance images captured by Miyako’s city cameras during and after the tsunami’s impact.

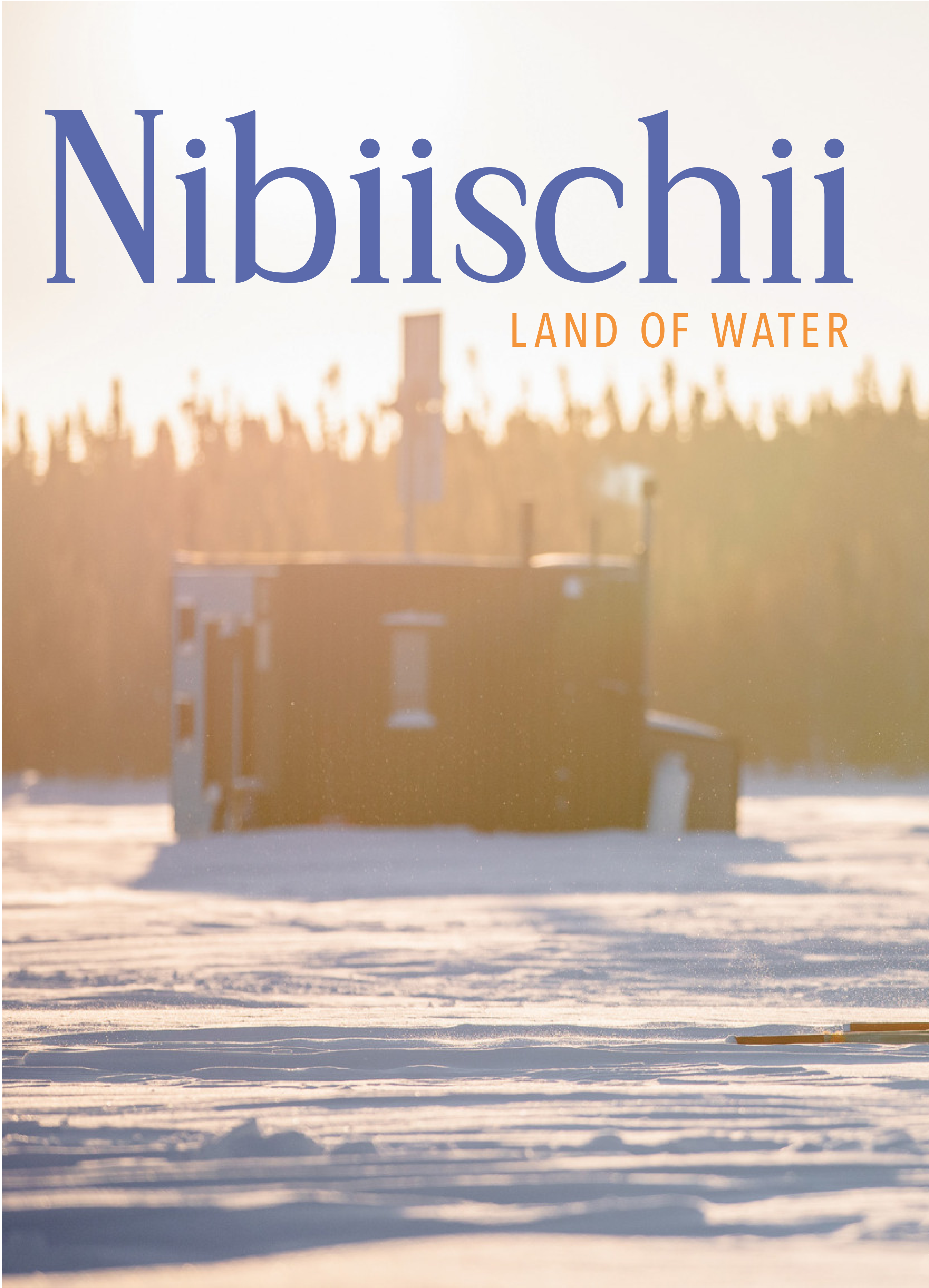
Looking closely, I can make out people who have taken shelter on rooftops, while others cling to utility poles. It’s yet another stark reminder that these communities have experienced unfathomable loss and that their healing continues even now, more than a decade after the cataclysm.

On my final morning, I rise before the sun and walk back to Jōdogahama. The day before, the beach had been busy with local families and cruise ship passengers. Now, I have it to myself.

I walk into the ocean and float on my back, smiling up at the brightening sky. What comes back to me as I drift here, cradled by the sea, is not just the solitude or the challenge of the trail, but the warmth I was met with at every turn in Tōhoku.

I think of the beaming children in Fudai, waving enthusiastically at the obvious outsider. I think of Maekawa, who shared some of his most harrowing memories after having just met me. Of the shopkeepers who made sure I was fully stocked with snacks for the road. And of Michiai, who welcomed me into her guesthouse as though I were her own daughter.

After several minutes, I wade out of the water and notice a middle-aged couple standing at the edge of the beach. They wave and walk towards me, so I smile and wave back. In English, they ask what I was doing. I tell them about my trek and ask where they’re from. The woman explains that they live inland but often visit the area on long weekends. Our conversation lasts only a few minutes, but her final words remain imprinted in my mind: “It’s nice to see visitors enjoying the coastline.” ❈



Nibiischii

LAND OF WATER

IN NIBIISCHII, THE LAND OF WATER, YOU'RE SURE TO FIND A WARM WELCOME, EVEN WHEN THE WATER TURNS TO ICE

BY **ABI HAYWARD**

ON THE SHORES of Waconichi Lake ᐚᐦᑯᓇᒦᐤ ᓵᑲᐦᐃᑲᓐ (lichen mountain lake), sun dapples softly down through snow-covered trees. Snowshoe-clad, our small group is paused next to an old shelter leaning against a tree, the icy air of Eeyou Istchee James Bay filling our lungs. The snow keeps the forest floor a secret. It's bringing back memories for Clifford Neeposh, a Cree trapper and entrepreneur from Mistissini ᒥᐢᑎᓯᓃ.

"In wintertime, this is how they used to make the shelters," he says, explaining how his grandfather would layer boughs and branches to protect against the freezing elements. "They would build a fire here, and they would find rocks, heat the rocks up and put them right here. The shelter would keep you warm."

Neeposh notices a scattering of rabbit tracks in the snow. "Even animals have used the shelter," he says with a grin, traps jangling in hand.

Once the memories start, they flow. "This used to be the old trail; we used to live not far from here," he says, pointing to a clearing in the trees. Each morning at 5 a.m., his grandfather and the other adults who worked at Waconichi Lodge, which was then a fishing lodge, would walk along this trail to get to work. "When I was a kid, we would stay at the camp just like little puppies or wolves or foxes in their beds."

There's a warm, welcoming shelter back along the trail at Waconichi Lodge, which is now run by the Nibiischii

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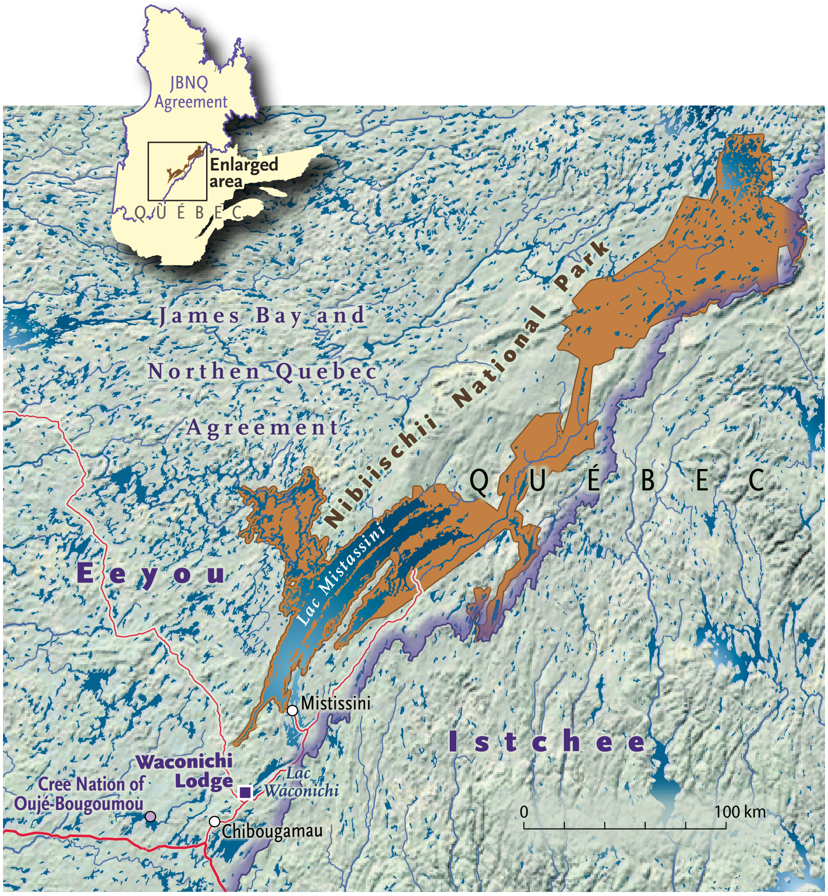
Abi Hayward (@a_l_hayward) is a nature lover and Canadian Geographic's senior editor.



Clifford Neeposh (OPPOSITE, TOP) on the trail hugging Waconichi Lake (PREVIOUS SPREAD). A cabin (ABOVE) and the Sabtuan (OPPOSITE, BOTTOM).

Corporation, created by the Cree Nation of Mistissini. With 11 self-catered atihkʷ ᐊᑎᐦᒄ (caribou) cabins, connected by boardwalks, and even the option of mwakʷ ᐧᒫᒄ (loon) on-ice cabins, which can be reached by snowshoe or snowmobile, it's a cosy place to stay on the edge of the boreal forest.

The accommodations at Waconichi Lake are just part of the puzzle: Nibiischii not only offers a whole host of places and ways to explore this "land of water" — it also protects it through the management of the Albanel-Mistassini-and-Waconichi Wildlife Reserve. And at the end of last year, after more than two decades of careful negotiations, the Cree Nation of Mistissini and Quebec governments announced the creation of a new national park — the first national park in the province to be operated by a Cree community. Nibiischii Park will work with Cree hunters, trappers and tallymen — the Cree people who supervise harvesting on the trapline — so they can continue to live in relation with the land and waters the way their ancestors did.

"We're very excited," says Deputy Chief John Matoush of Mistissini on reaching this achievement and collaborating on eco-tourism. "And it also goes in line with what we bring as Crees — the culture, the land, how connected we are. Really goes in line with protecting an area. But at the same time, we're able to hunt, we're able to harvest, we're able to maintain our rights when it comes to living the way of life on the land."

> "When I was a kid, **WE WOULD STAY** at the camp just like **little puppies** or wolves or foxes in their beds."

Tourism like this doesn't just bring economic opportunities to Cree communities; it allows people to be who they are in the place they're from. "The passion that people have out on the land, getting to spend time on the land, the two go together," says Matoush. "You're working, but at the same time you're going where you're able to hunt, where your family traplines are."

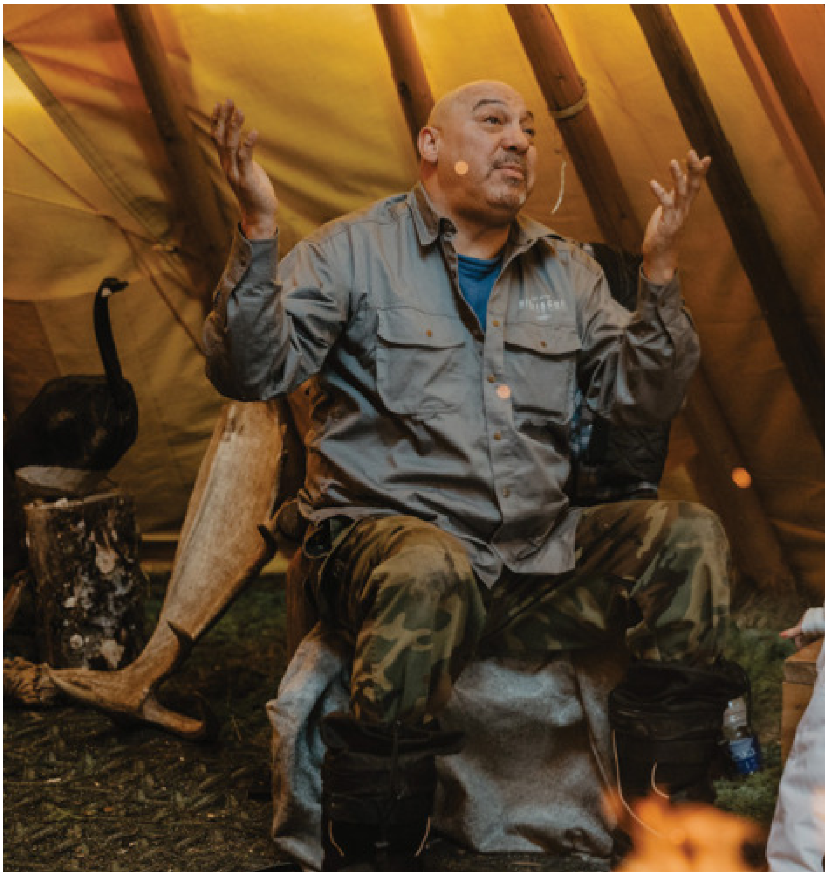
THE BEATING HEART of Waconichi is the Sabtuan, a traditional Cree shelter built with care by Mario Lord, a tallyman and Nibiischii's cultural development officer. The first thing you'll learn about Lord is that he's a Boston Bruins fan. The second thing you'll come to know is that Lord can make practically

PREVIOUS SPREAD: STAY & WANDER; THIS SPREAD, CLOCKWISE FROM TOP LEFT: ABI HAYWARD; MICHAEL ABRIL; MICHAEL ABRIL; MAP: CHRIS BRACKLEY/CAN GEO;
MAP DATA: NIBIISCHII NATIONAL PARK: CANADIAN PROTECTED AND CONSERVED AREAS DATABASE; ENVIRONMENT AND CLIMATE CHANGE CANADA, DECEMBER 2024

anything. Behind where he stands in the Sabtuan, wooden posts sloping to the sky, there's a handcrafted wooden tanker with the Bruins logo, a beaded bracelet in yellow and black, a hand drum painted with a bear print with yellow and black around the edge, a turtle rattle from down south with yellow and black beads. There are stretched hides, a happily crackling fire and a ptarmigan on a stick being roasted by the heat of a metal drum.

The type of tarp he used for the Sabtuan, Lord tells us, he'd first seen in his 15 years working in the mines, where they were used for pushing air underground. "They don't burn. They don't rot. Can't even try to tear it — you won't be able to. When I see that, I said, I got to get some," he says, and points up. "After 15 years, there's one! And I had to glue everything, cut it, measure, you know. I didn't need an engineer to make this. I had the plans all in my head."

The knowledge Lord has, he shares. In our short time on Waconichi Lake,



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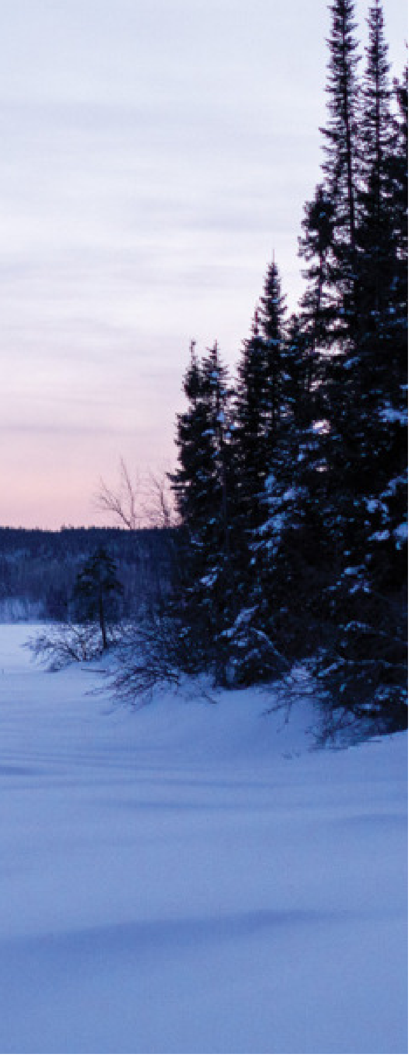


Mario Lord (OPPOSITE, BOTTOM) built the Sabtuan (ABOVE), a gathering place that overlooks Waconichi Lake (TOP LEFT).

he teaches us how to weave tamarack into niskihkan ᓂᐢᑭᐦᑲᐣ (goose decoys), used by Cree hunters to encourage nisk ᓂᐢᐠ (geese) to land when they return in the spring. He teaches us to make a fire, to cook a goose, to bake bannock and to sew together a pouch from moosehide to gather kaachichepakw ᑳᒋᒉᐸᒄ (labrador tea).

"The best way to learn it is to live it — like this. You see somebody do something, you learn," he says. Lord was brought up by his grandparents in the bush when he was unable to attend school after getting sick from tuberculosis. He doesn't know who he would be today if he hadn't been raised in nature. ("Maybe a lawyer. A chief, maybe!") He knows the hunting ground, south to Senneterre, and north up to Chisasibi. He knows the creeks and the lakes in this land of water. "I kind of feel lost when I go into the city. If you throw me anywhere in the middle of the forest, I'll come back..." Lord trails off, emotional.

The fire crackles. The aroma of pine needles wafts up from a layer that carpets the floor. "So, that's a little history of my life," Lord chuckles. It's a history we're honoured to hear. Then it's time for lunch.

> "The best way to learn it
> **IS TO LIVE IT**
> – like this. You see
> somebody do something,
> **you learn**."

After an afternoon of learning how to weave the goose decoy (after a few hours, my goose is tiny and still not finished), our hands a bit sticky and smelling like tamarack, it's time to head out on the frozen lake. It's a bumpy ride in a slick black carriage drawn by snowmobile around the peninsula the lodge sits on to where the mwakʷ ᒹᒄ on-ice cabins flank an on-ice studio. The light is leaving the sky, which has turned a slate grey, heavy with the promise of more snow. Warm light spills out from the beckoning shelter.

As darkness closes around the cabin, we're warm inside, tucking in to a dinner of locally prepared ready-made meals, which guests can purchase at reception. There's falling-off-the bone smoked beef ribs and slow-simmered beef bourguignon and bannock: perfect hearty food to fend off the cold outside. The menu also includes corn soup infused with boreal notes, woodland phō flavoured with locally foraged mushrooms and roast duck inspired by traditional goose cooked on an open fire.

The walkway (THIS PAGE) between atihk^w cabins is crunchy with sparkling snow. A sky full of stars (OPPOSITE) over Waconichi Lake's on-ice cabins.

Feeling warm and fuzzy, we stomp back out onto the lake ice. If it was a clear night, the stars would be out in their millions, and it could be a good evening to check out the Uchekatahkw ᐅᒉᑲᑕᐦᒄ (Big Dipper) astronomical observatory, a short walk or snowshoe from the lodge. As it is, the sky is filled with fluffily billowing snow. No matter. We head across the ice to Waconichi's ice cinema for a screening of the 1974 documentary film *Cree Hunters of Mistassini*. The light of the projector becomes a glowing column of flurrying snowflakes as, from a heated geodome, we watch the rhythms of a previous generation of Cree harvesters build their winter camp. It is at once ancient and futurist.

ON THE VERY FIRST NIGHT, we were joined by Elder Irene Otter of Waswanipi. Otter's Cree name means "Laughing Woman," and she'll be the first to tell you she loves to laugh. She sat in an armchair by the fireplace, wrapped in a shawl, her long white hair in braids. She told us about a time long ago when there was a scarcity of food. No moose, no bear. The people were starving. So now it's part of being Cree to share food, and welcome other people. Even now, when someone hunts a moose, they give some to the Elders first.

"That's the way we are: we share," says Otter. "I've always grown up seeing how my family is. We learned that when we were young. When you are in your cabin or your tent or wherever you're at, you always have something ready for a visitor."

Her great-grandmother used to have a feeling when a visitor was about to arrive. "Osihowin we call it. You feel somebody coming. A premonition, I guess, and you would fix something — bannock, soup, whatever we have — and we're ready for someone to come and feel welcomed. That's the way I see my people.... We are very welcoming people, and I hope you feel that now." ❆

OPPOSITE: MICHAEL ABRIL; THIS PAGE: STAY & WANDER

THE GLOBAL EXPLORATION SUMMIT COMES TO CANADA

GLEX
GLOBAL EXPLORATION SUMMIT
GLEX

For the first time in the event's six-year history, the New York City-based Explorers Club partnered with the Royal Canadian Geographical Society to bring its Global Exploration Summit (GLEX) to Canada — a show of cross-border cooperation and friendship at a time of heightened tensions between Canada and the United States. "It's more important than ever to build cross-border alliances with organizations dedicated to scientific inquiry and the health of the planet," said RCGS CEO John Geiger. Explorers Club president Richard Wiese likened Canada to a neighbour who borrows your lawnmower and not only brings it back full of gas, but also hands you a fresh cup of coffee. Read on for more highlights from the event, which drew more than 200 explorers from around the world.

WE CELEBRATED "A MAN OF VISION"

The weekend kicked off with a welcome reception at the French embassy. France and Canada share a long history and an enduring spirit of exploration, Ambassador Michel Miraillet said, and though the means and ends of exploration have changed since explorer Samuel de Champlain's time, "what hasn't changed is the need to work together across borders, across disciplines, and with deep respect for different ways of knowing." Franco-Canadian businessman, explorer and author Hubert Sagnières, who has made it his mission to help people around the world access vision care, was made an Honorary Fellow.

VALÉRIE COURTOIS ON INDIGENOUS-LED CONSERVATION

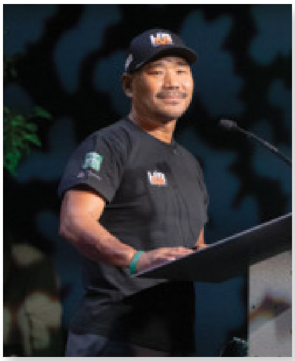
Valérie Courtois, director of the Indigenous Leadership Initiative, was first to take the GLEX stage. Courtois, who is Innu from Mashteuiatsh, told an Innu story about a young boy who, desperate to feed himself and his father, married a caribou. In return, the caribou promised that his people would never again go hungry. The story illustrates the interdependence between Indigenous people and the land, and shows that when it comes to Indigenous-led conservation, "this isn't just about an activity," Courtois said. "This is about who we are."

THIS PAGE, FROM TOP: MELODY MALONEY/CAN GEO; CHARLIE WOOLF/CAN GEO. OPPOSITE, CLOCKWISE FROM TOP: MELODY MALONEY/CAN GEO; COURTESY PARKS CANADA; ASHLEY FRASER; PAUL VAN ZANT; MELODY MALONEY/CAN GEO; CHARLIE WOOLF/CAN GEO

WHAT'S NEXT FOR FOUR SHIPWRECKS

We are in a "golden age of shipwreck hunting," said renowned wreck hunter David Mearns. The panel discussion also included RCGS CEO and Shackleton Quest Expedition leader John Geiger, Endurance22 exploration director Mensun Bound, and Jonathan Moore, manager of Parks Canada's underwater archaeology team, which works on the wrecks of HMS *Erebus* and *Terror*. New technologies are making it easier to visit, document and retrieve artifacts from these "archeological time capsules."

HARI BUDHA MAGAR DEFIES LIMITS



Hari Budha Magar was serving as a Gurkha with the British Army in Afghanistan in 2010 when he stepped on an improvised explosive device and lost both legs above the knee. Struggling with post-traumatic stress disorder but determined to live for his family, Magar threw himself into sport and on May 19, 2023, became the first double above-knee amputee to summit Mount Everest. He is now on his way to completing the Seven Summits: "Life is all about adaptation, and nothing is impossible."

WE CONTEMPLATED TIME

Two speakers got us thinking about time. First, Kenyan paleontologist Louise Leakey reflected on how much we've learned about human evolution since her grandfather Louis Leakey's fossil discoveries proved that evolution was centred in Africa. Then, physicist and science presenter Brian Cox explained how new technologies like the James Webb Space Telescope could upend our current understanding of the universe. Both Leakey and Cox were made Honorary Fellows of the Society.

GUNJAN MENON ON EMPATHY

Growing up, Indian filmmaker Gunjan Menon struggled with anxiety and depression over climate change and environmental degradation, until she realized she could channel her empathy into impact-oriented films. Through projects like *The Firefox Guardian* and the forthcoming documentary *Dreaming in Blue*, which focuses on women working to protect India's remote Lakshadweep Islands, Menon spotlights community-led conservation efforts and uplifts marginalized voices in exploration. "I realized if empathy can make us feel paralyzed with pain, it can also fill us up with wonder, and when people fall in love with something, they'll fight to protect it," she said.

—Alexandra Pope

Read more highlights and see more photos from GLEX Canada at cangeo.ca/glexcanada

SOCIETY BRIEFS

Eleven years after the wreck of **HMS *Erebus*** was found off King William Island in the Canadian Arctic, Parks Canada honoured partners in the search, including the Royal Canadian Geographical Society, with a unique gift: a replica of the iconic ship's bronze bell. The bells were created from a mould of the actual bell, which now resides at the National Museum of the Royal Navy in the U.K.

He's a lumberjack and he's okay! Two pieces of **Monty Python** memorabilia now have a permanent home at 50 Sussex: a red flannel shirt, tunic and Stetson worn by **Michael Palin** and **Terry Gilliam** respectively for the last live performance of *The Lumberjack Song*.

The 21st International Geography Olympiad

Team Canada put in a strong showing at this year's International Geography Olympiad in Bangkok, Thailand. The team tested their geography skills against 179 students from 47 countries and walked away with silver and bronze medals.

FEATURED FELLOW: CHRISTIAN BÖK

BENNY CAPP

Poet Christian Bök is known for his experimental approach to the art form. His first book, *Crystallography*, explores the geology of language; its follow-up, *Eunoia*, consists of five chapters, each using a single vowel. With his latest work, *The Xenotext*, Bök has accomplished something truly mind-bending: encoding a poem into the DNA of an extremophile bacteria — an effort he hopes will enable the poem to "outlast the sun."

On the gift that started it all

Around the age of four, I was taken to see Santa Claus at a mall. In my panic, I asked for the first thing that came to me — a typewriter. Santa tried to talk me out of this foolish request, and to the credit of my parents, they did then go out and purchase a green plastic typewriter for children. Now, I couldn't read. But I opened up my favourite book — a manual of some kind — and looked for the same symbol on the keyboard and hit the key, obsessively and relentlessly, until I'd filled the page.

On the personalities of vowels

[In writing *Eunoia*], I discovered that vowels, in fact, have personalities. They're completely, strangely unique. These different moods that the vowels express has something to do with the contribution they make to the connotations of words, the kind of emotional valences of words. Words that have lots of Os in them, for example, are probably a bit lunatic, a little silly, whereas words with a lot of As in them are a lot more magical or strange.

On the *Xenotext* and living poetry

I do experiments mostly to figure out what language can do when it's freed from the necessity to mean things or to convey information. I wrote two poems according to a set of procedures that permit them to be enciphered as a genetic sequence that can be implanted into the chromosome of a bacterium and be preserved in that genome. The host organism is a deathless bacterium capable of surviving in all kinds of hostile environments, and it can repair its own DNA so quickly that it doesn't mutate or change very easily. Basically, I've tried to write a poem that would outlast the sun.

> In a move aimed at challenging his peers to think big, poet Christian Bök has written a poem he hopes will outlast the sun.

On the response to his work

I polarize opinion. There are lots of people who think I'm a genius and there are lots of people who think I'm a fraud. I'm trying to respond as a poet to the 21st century. If I were to ask you what's your favorite poem about the moon landing — well, there isn't one. You can bet that if the ancient Greeks had ridden a trireme to the moon, there would be a 24-volume epic poem about that event. I feel that that's a shortcoming of poetry right now, and so my work is to really act as a goad to my peers. If you try to write a poem that will outlast the sun, that's a hard story to upstage.

—*Interview by Angelica Haggert*

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COMING UP

O CANADA!

Canadian Geographic's 2025 Canadian Photos of the Year competition is now open. We're looking for your breathtaking captures of Canada's fabulous flora, fauna and geographical features. The winning shots will be showcased in the March/April 2026 issue.

HAPPY NEW YEAR!

Featuring crimson sunsets and golden prairies, chunky grizzlies and cheerful chickadees, *Canadian Geographic*'s 2026 calendars are the perfect purchase for nature lovers. Now available at stores across the country, this year's calendars highlight Canadian wildlife, stunning landscapes, birds, weather, moose and more.

Canadian Geographic
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NORTHERN EXPOSURE

Much of the Yukon is a vast wilderness, its predators and fur-bearing herbivores both widely dispersed and shy. It sometimes feels as if these northern species are ghosts — we rarely see them, most often recording their presence through tracks in the snow. Photographer Peter Mather uses camera traps, flash and long exposures to capture the ghostly essence of these otherworldly inhabitants of the North. See them in the next issue.

JUMP START

Each spring, migrating pronghorn "surf the green wave," following the emerging grasses from south to north as the weather warms. But as the continent's fastest land animal bounds across the grasslands, a number of major hurdles stand in its way. First up, barbed wire fences. Pronghorns simply don't like to jump them. Nor do they like to feed near solar and wind farms. In the January/February issue, Marcello Di Cintio explores solutions.

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CLOCKWISE FROM TOP LEFT: MATTHEW LITTLEWOOD; JASON DAIN/CAN GEO PHOTO CLUB; JOEL SARTORE; PETER MATHER

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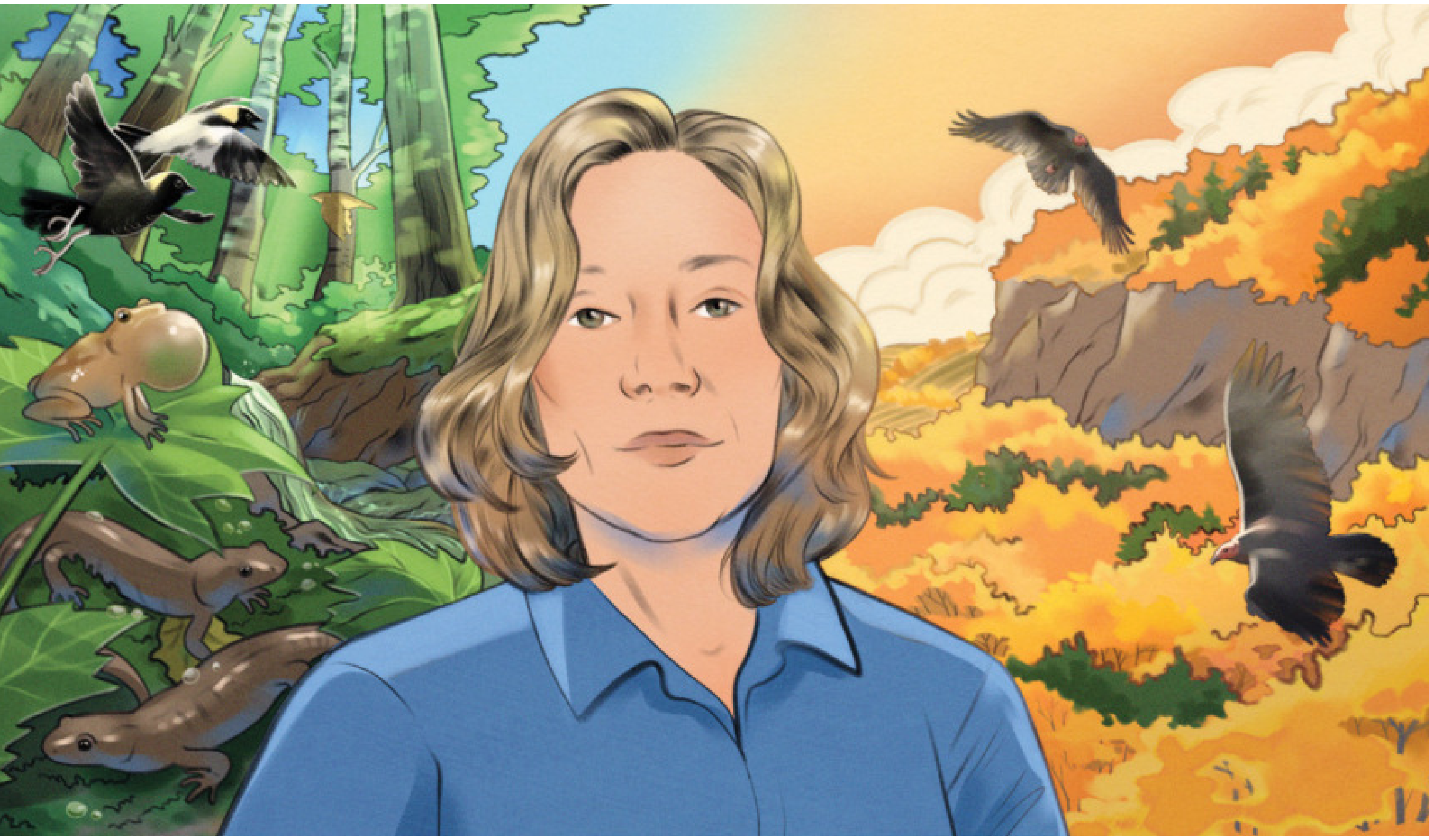

Sarah Harmer

The singer-songwriter and environmental activist on her lifelong love for Mount Nemo, Ont.

I love a lot of places, but this is where I grew up, and it's where I spend much of my time because my parents still live in the area. Mount Nemo is this outlier of nature on the edge of the suburban GTA [Greater Toronto Area]. It's hard to develop because it sits up above the landscape, and so it has been largely preserved, except for the fact that the gravel mining industry has been trying to haul a lot of it away over the decades.

It is a place of refuge for so many rare and endangered species — and for people. The Bruce Trail goes right through Mount Nemo Conservation Area and takes you to a lookout across a patchwork of farmland and the skylines of Mississauga and Toronto. In spring, the forest is a cacophony. Bobolinks are flitting from the tops of the trees out into the middle of the fields where they're building their nests. You can't hear yourself think with the noise of the spring peepers and wood frogs, and if you go out at night during the first rains in late March or early April, the forest floor is moving with yellow-spotted salamanders and Jefferson salamanders. It's Carolinian forest, with shagbark hickory and sugar maple and red and white oak, so in fall you get the splendour of the colours. It's been called the fountainhead; so many creek systems originate at the top of Mount Nemo. I'm still working with community groups to safeguard it from a very unregulated industry that is trying to hollow it out.

I feel so lucky that I've been able to know this place for such a long time and come back to it in different seasons. It's irreplaceable.

—as told to Alexandra Pope

NATASHA DONOVAN

Mount Nemo is located on the treaty lands and traditional territory of the Anishinaabe, Haudenosaunee and Wendat peoples.

FORESTRY
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REDEFINING RESILIENCE

with the Wildfire Resilience Consortium of Canada

AS OF MID-AUGUST, the 2025 fire season was on track to become Canada's second-worst on record, with more than 7.3 million hectares burned. Since the spring, headlines across the country have consistently highlighted a community ordered to evacuate, a new fire sparking somewhere, or unique resource-sharing situations for fire management.

Enter the newly-created Wildfire Resilience Consortium of Canada. As a beacon of boundary-breaking hope, the WRCC aims to create a transformative approach to wildfiremanagement, bringing together the front line, researchers, industry experts, the forest products sector, Indigenous Peoples and governments to collaboratively answer the call for solutions from Natural Resources Canada.

"It's a purpose-built not-for-profit that was designed to transform wildfire resilience across Canada, really focusing on a 'whole of society' approach," says Kelsey Winter, Executive Director of the Canadian Interagency Forest Fire Centre and Board Chair of the WRCC.

The group's two forest products industry members, FP Innovations and Forest Products Association of Canada (FPAC), play a critical role in mitigating wildfire damage and helping landscapes adapt to changing climate conditions.

"We'll never get ahead of the increasing wildfire problem," says Winter. "But for us in Canada to make meaningful change, to be proactive at the landscape level, the forest and wildfire sectors have to work in lock-step with the forest industry. Integrated forest management is the future and the forest industry plays a huge role there."

One example that comes to Winter's mind when she thinks about the role of the forest industry is adaptive forest management. "There's some really neat innovations in how we're thinning [overgrown forest areas], in how we're being light on the land, in how we're making it more economical to do that kind of thinning for low value timber … and understanding that there are ways that we can adjust our harvest schedules," she says.

The WRCC will be guided by three core pillars: Indigenous Fire Stewardship, Knowledge Mobilization, and Technology and Innovation. Work that organizations like FPAC were already doing to promote Indigenous-led fire response will be further supported under the WRCC as it aims to create a "greater recognition and application of Indigenous-led fire stewardship practices."

As part of breaking down boundaries between the different stakeholders involved in wildfire management, WRCC is also breaking down the literal borders between provinces. They've re-labelled the country into six zones representing the six different types of wildfire ecosystems across Canada: Cordillera, Taiga, Boreal Plain, Prairie, Boreal Shield and Atlantic Maritime. These zones will help places that experience wildfire in similar ways work more collaboratively together.

"Each province and territory has its own focus and its own challenges and its own concerns," says Winter. "I think it will be a challenge to balance the needs and the problems that each province and territory is facing … but that's why we intentionally built WRCC the way that we did."

To learn more about how Canada's forest sector can support a more sustainable future, visit forestryforthefuture.ca.

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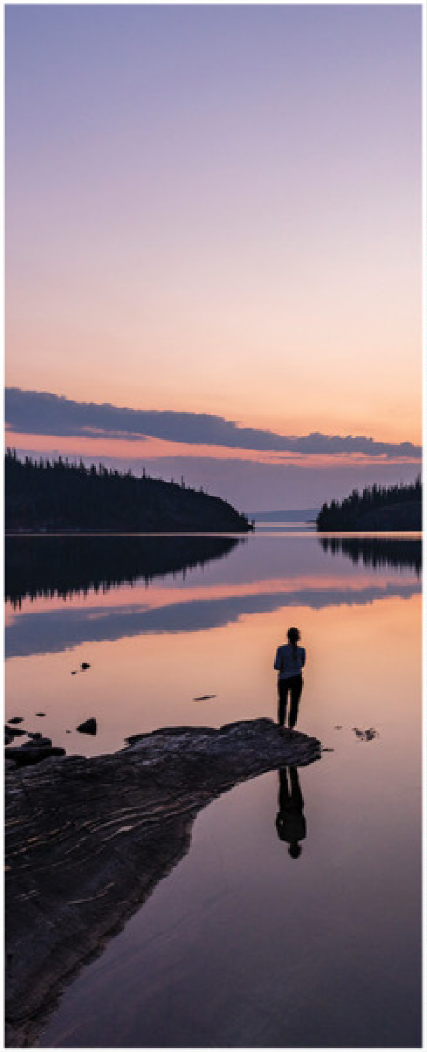

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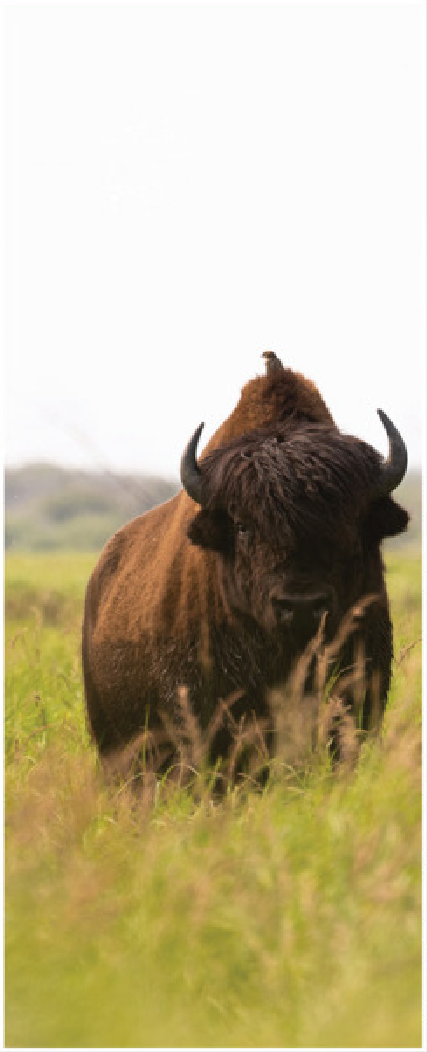

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